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WESTERN EUROPE

a growing market for U. S. SOYBEANS and SOYBEAN MEAL

Foreign Agricultural Service • U. S. DEPARTMENT OF AGRICULTURE

PREFACE

The export market for U. S. soybeans and soybean meal in Western Europe has grown in less than a decade from a small and irregular one to a large and stable marketing activity. Today, Western Europe is taking nearly $300 million worth of these products, representing around 130 million bushels of soybeans produced on 5 million acres of U. S. farmlands, or nearly one-seventh of the Nation's total crop.

This important U. S. market for soybeans, soybean meal, and oil is widening every year, as a strong demand is developing for soybean meal in mixed feeds, for soybean oil to be used in edible products,--particularly margarine and shortening--and for cooking oil, as well as for technical use. U. S. soybeans now supply Western Europe with the major raw material for its vast oilseed crushing industry.

This valuable dollar market has been developed under the auspices of free trade. The demand for U. S. soybean meal has been well established, not only because of improved product quality and marketing efficiencies, but also because of the dependable supply of U. S. soybeans available each year. As a result, Western Europe has built new crushing mills and installed new processing equipment in recent years, specifically for handling soybeans.

A study was made in Western Europe in mid-1962 to determine the nature of the existing market demand from the processing industries. This report presents the findings in order that U. S. producers and exporters might better take advantage of opportunities to supply the entire potential of this market.

Quality standards of U. S. soybeans and soybean meals exported to this growing market have been well accepted by European crushers and feed mixers. U. S. soybeans imported by the crushing industry have fitted especially well into the European coastal water marketing system, which differs so distinctly from U. S. marketing channels.

As a result, U. S. soybeans and soybean meal are moving well and efficiently by means of existing shipping, handling, storage, and processing facilities which are being reconstructed to move larger quantities.

Competitive suppliers, such as mainland China, are not expected to be important factors in this market during the next few years, and improvement in the U. S. soybean competitive position is expected to continue.

Fats and oil crushers and feed mixers will increase their demand for U. S. soybeans and soybean meal. This report indicates that there is a possibility to increase this demand to rather unexpected proportions within the next few years.

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WESTERN EUROPE, A GROWING MARKET FOR U. S. SOYBEANS AND SOYBEAN MEAL

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Introduction

One of the major marketing problems facing the U. S. fats and oils industry today is to determine what the demand for U. S. soybeans and soybean meal will be in Western Europe through the 1960's—how it will compare with requirements in the past few years.

Patterns of food consumption are changing in the area as incomes rise. People are eating more meat and other animal proteins and fats; per capita consumption has been rising rapidly at the expense of grain. Use of dairy products remains high and, in many of the countries, consumption of poultry and other white meats is increasing. As a result, the growing livestock industries are using rapidly increasing quantities of high-protein content soybean meal and other cakes and meals for mixed feed.

European livestock have not been quite as well fed as livestock in many sections of the United States, though they have always had a relatively large quantity of oilseed cake and meal protein because it is an inexpensive form of feeding.

The mixed-feed industry of Western Europe is expected to continue to increase its use of soybean meal, secured both through imports of soybeans crushed by the domestic industries, and also in the form of imported soybean meal. Total mixed-feed production of the area is expected to rise from 30 million tons in 1962 to nearly 40 million tons by the end of 1965.

In terms of edible oil for human consumption, however, soybean crushing may expand at a slower rate as production and consumption of butter and lard rise as a result of increased animal numbers, and as total fat consumption reaches a plateau.

Annual oilseed crushing capacity in Western Europe is now estimated at approximately 10 million tons, only about 6 million to 7 million of which is utilized each year. The major crushing industries are in the United Kingdom, the Netherlands, France, West Germany, Italy, Belgium, and Denmark. Most of the crushing capacity is for soybeans—an estimated 6 million tons of the 10 million, and this capacity has increased in the postwar period because of availability of U. S. soybeans and economy in crushing them. Increased capacity has come both through construction of new plants with modern continuous solvent extraction equipment, and through use of the latter to replace older equipment in existing plants. For other oilseeds crushing has declined because of highly competitive crushing operations in the oilseed supply areas, which provide low-priced protein meals to Western Europe.

Most oilseed mills in Western Europe that crush soybeans are large integrated plants that crush other oilseeds as well, and process fats and oils

products. However, some mills only crush oilseeds, and a few of these specialize in soybean crushing.

Summary

Western Europe has been an expanding U. S. market for both soybeans and soybean meal in recent years, and is now the largest export market for these commodities. During 1960, 72 million bushels of soybeans and 496,000 tons of oilseed cake and meal moved to Western Europe. This was over half of total U. S. exports of these commodities. For soybean meal, exports to the area were more than double those of the preceding year, and for soybeans they were two-fifths larger. Furthermore, nearly three-fourths of the cakes and meal—over 300,000 tons—moved as soybean cake and meal. Today, the United States is looking forward to a soybean and soybean meal market nearly triple that of 1960.

If anticipated demands for 1965 are met, Western Europe probably will be taking around 4.4 million tons of U. S. soybean meal or the equivalent in soybeans. By that year, total mixed-feed production in Western Europe could pass 40 million tons, over one-third above the nearly 30 million tons produced in 1962. Total demand for oilcakes and meals is now around 9.5 million tons and could reach 12 million tons by the end of 1965.

Requirements for U. S. soybeans and soybean meal in Western Europe are likely to expand 40 percent and 85 percent, respectively, over present levels by 1965. Thus, in that year they could reach 1.5 million tons for soybean meal as meal (from over 800,000 tons in 1962) and 3.6 million tons for soybeans as beans (from less than 2.5 million in 1962). Expressed in terms of soybeans, total demand in Western Europe for U. S. soybean meal in 1965 would be 5.5 million metric tons of beans—over 200 million bushels. This represents an increase of 2 million tons (around 75 million bushels).

Future expansion of the market is expected especially in certain countries: for soybean meal, in Germany, the Netherlands, Belgium, Denmark, and France, and for soybeans, all these and the United Kingdom, Italy, and Spain as well. Growth of the soybean meal market is expected to result from expansion of the mixed feed industry for the growing livestock and poultry operations, particularly since there is a new emphasis on improved feeding practices and reliance on balanced feed.

Poultry meat production alone will increase around an estimated 1,300 to 1,500 million pounds between 1962 and 1965, if current trends continue. Based on this conservative estimate, the demand for soybean meal for poultry feeding and broilers will increase around 700,000 to 800,000 tons.

European crushers are expected to continue to crush more soybeans each year, for some time, primarily to meet the large demand for meal, but imports of U. S. meal can be expected to rise nearly as fast as the equivalent in soybeans, if U. S. meal prices remain competitive.

Crushing of soybeans for edible fats will be secondary to that for soybean meal. In the Northern European countries, per capita consumption of edible fats and oils has been stabilized in recent years, at levels above the 46 pounds (Germany has reached 55 to 57 pounds) consumed in the United States. However, in France, Italy, and Spain per capita consumption is now near or below this level, indicating development of larger markets for soybean oil in these countries is possible. Margarine makers, for instance, suggest that use of soybean oil may be expanded if research now underway should be successful.

However, low-priced fish and marine oil, also used in margarine, have been highly competitive in recent years.

Soybean Meal Demand Factors

The growing demand for soybean meal for poultry and hog feeds is expected to take much of the cyclical element out of U. S. exports of soybeans and soybean meal.

European feed mixers have developed a preference for U. S. soybean meal because:

1. U. S. soybean meal has a lower moisture content than European flakes—12 percent compared with 13 percent to 15 percent.

2. It also has a lower fiber content—containing much less foreign material.

3. U. S. meal is now moving in bulk at lower cost. (Much of it formerly moved in bags.)

4. It is easy to move by water facilities (the same as those used for grain).

5. Large shipments are available.

6. The texture of U. S. meal is often preferred over that of European unground flakes.

7. Mixers can guarantee results with high-quality toasted meal--44 percent protein. (U. S. meal usually runs well above this guaranteed minimum.)

The price of U. S. grain has been competitive, with recent low rates on ocean contracts helpful.

Very little U. S. 50 percent soybean meal is used in Europe, and the demand has yet to be established. (Practically all U. S. meal moving to Europe is 44 percent soybean meal that has been solvent extracted.)

Loading and Unloading

Recent developments in moving U. S. soybean meal in bulk have lowered costs of ocean freight and made the product more competitive pricewise. Bulk movement has been facilitated by improved shipping and loading facilities at U. S. ports. A major unsolved problem concerns the meal's unloading. A large percentage of unloading facilities in Western Europe is pneumatic, and many shipments of U. S. bulk meal arriving in Western European ports cannot be handled efficiently with such equipment because the meal has been compressed in the ship's hold during transit. Compression of the meal probably results from its being freshly milled and slightly moist at time of loading, so that at time of discharge it is often necessary to free it with pickaxes.

At present, it takes three times as long to unload soybean meal at Hamburg as to unload soybeans, with 300 tons of the former being moved in the

same time as 800 to 900 tons of the latter. At Antwerp, also, unloading by floating elevators is much slower for soybean meal than for soybeans.

At Rotterdam, where speed of unloading by pneumatic elevators is 50 to 60 tons per hour, no extra charges are assessed for unloading soybean meal.

At Bordeaux, unloading presents no problems since soybean meal is discharged by use of cranes and clam shovels directly to open docks or rail cars, then stocked in a large warehouse or forwarded directly to the final destination. Here average tonnage is around 600 per working day for soybeans and about 550 for soybean meal. 1/

Prospects by Country

West Germany will continue to expand its crushings of soybeans, which probably reached nearly 1 million tons in 1962, and is likely to reach 1.3 million by 1965. However, crushing is not likely to rise much above these figures unless Germany develops larger domestic markets for the soybean oil produced, because it does have good markets for its soybean meal.

France will take more soybean meal as meal, in coming years; imports reached 231,000 metric tons in 1962, and will probably jump to 400,000 metric tons by 1965. Also, there appears to be a tooling-up at several plants in anticipation of processing soybeans, although the volume will depend upon soybean oil marketings.

The United Kingdom is a large potential market for U. S. soybeans and possibly meal and can be expected to increase its imports of U. S. soybeans substantially. Present imports, of less than 150,000 metric tons, could rise to around 300,000 metric tons by 1965.

Denmark will continue to expand its crushings of U. S. soybeans, which reached over 319,000 metric tons in 1962, and by 1965 the country may be crushing around 400,000 metric tons.

Italy will remain a soybean crusher, although the problem of marketing soybean oil will be determined by the olive oil supply. This may tend to affect the amount of soybeans that will be crushed there. Over 300,000 metric tons of U. S. soybeans were crushed in 1962, with a probable increase to 500,000 metric tons by 1965.

The Netherlands crushing mills are working at near-capacity levels, and 310,000 metric tons of soybeans were probably extracted in 1962. Crushings by 1965 may reach around 450,000 metric tons, but will not be higher unless a new mill is built.

Belgium will continue to expand its crushings of U. S. soybeans, which probably reached over 119,000 metric tons in 1962. By 1965, the country may be crushing around 200,000 metric tons.

Spain will increase its takings of U. S. soybean meal considerably if the price remains competitive, particularly since the market was freed in January 1963. Total imports, which in 1962 were only around 39,000 metric tons, may reach around 150,000 to 200,000 metric tons by 1965.

1/ From reports of the Superintendence Company, Incorporated, New York, New York.

Table 1.—WESTERN EUROPE: Imports from United States, soybeans, soybean meal and totals as soybeans Average 1950-54, CY 1955-62, and 1965 projection.

Item	Average 1950-54 Metric tons	1955 Metric tons	1956 Metric tons	1957 Metric tons	1958 Metric tons	1959 Metric tons	1960 Metric tons	1961 Metric tons	1962 1/ Metric tons	1965 2/ Metric tons
	SOYBEANS									
W. Germany	95,427	347,758	443,481	612,395	536,638	674,623	784,535	842,049	970,826	1,300,000
France	36,338	77,880	55,803	64,880	44,898	75,135	180,622	81,557	138,260	250,000
United Kingdom	10,887	67,095	25,000	69,481	18,528	99,572	147,326	56,898	143,000	300,000
Denmark	25,582	82,562	106,399	147,051	136,041	169,412	239,079	213,743	318,912	400,000
Italy	191	-------	-------	839	3,737	34,862	101,539	181,241	317,878	500,000
The Netherlands	48,268	134,675	139,073	182,182	179,477	241,075	299,859	219,169	341,676	450,000
Belgium	20,314	27,320	39,202	33,372	33,472	75,740	133,557	80,694	119,302	200,000
Spain	------	-------	-------	-------	-------	-------	1,446	-------	21	75,000
Other 3/	47,793	37,002	47,966	101,730	50,980	62,075	102,270	115,030	143,431	175,000
Total	284,800	774,292	856,924	1,211,930	1,003,771	1,432,494	1,990,233	1,790,381	2,493,306	3,650,000
	SOYBEAN MEAL									
W. Germany	140	2,124	5,175	4,739	3,976	13,895	45,839	42,300	172,402	275,000
France	1,570	8,826	5,183	938	1,268	3,805	19,440	73,012	230,791	400,000
United Kingdom 1/	3,472	10,498	3,592	2,977	508	751	852	6,794	4,199	10,000
Denmark	4,356	23,266	29,115	20,338	7,366	14,315	30,448	64,659	101,850	200,000
Italy 4/	83	7,964	32,289	46,391	50,297	61,312	43,540	12,684	5,129 5/	50,000
The Netherlands	3,443	19,509	7,002	2,211	5,363	30,964	60,725	36,962	109,629	200,000
Belgium	1,594	20,495	12,272	14,876	14,468	41,721	53,430	38,114	71,353	150,000
Spain	------	53	2,673	249	923	24,537	34,464	35,949	39,648 5/	150,000
Other 3/	10,942	51,900	53,240	27,923	42,527	50,519	31,600	20,620	84,966	100,000
Total	25,600	144,635	150,541	120,642	126,696	241,819	320,338	331,094	819,967	1,535,000
	TOTAL IMPORTS AS SOYBEAN EQUIVALENT									
W. Germany	95,606	350,471	450,090	618,447	541,716	692,369	843,078	896,072	1,191,007	1,650,000
France	38,343	89,152	62,422	66,078	46,517	79,995	205,450	174,803	433,012	750,000
United Kingdom	15,321	80,502	29,587	73,283	19,177	100,531	148,414	65,575	148,363	315,000
Denmark	31,143	112,276	143,569	173,016	145,445	187,687	277,950	296,290	448,989	650,000
Italy	297	10,171	41,238	60,087	67,973	113,166	157,146	197,440	324,428	565,000
The Netherlands	52,664	159,581	148,012	185,005	186,324	280,605	377,384	266,975	481,687	700,000
Belgium	22,350	53,495	54,875	52,371	51,950	129,024	201,795	129,371	210,430	390,000
Spain	------	68	3,414	318	1,179	31,337	45,912	45,912	50,657	265,000
Other 3/	61,767	103,286	115,961	137,392	105,293	126,595	142,628	141,365	251,944	300,000
Total	317,491	959,002	1,049,168	1,365,997	1,165,574	1,741,309	2,399,757	2,213,803	3,540,517	5,585,000
Total, million bushels	11.7	35.2	38.5	50.2	42.8	64.0	88.2	81.3	130.0	205.0

1/ Preliminary
2/ Imports projected.
3/ Norway, Sweden, Switzerland, Ireland, Austria, and other adjusted for exports from U.S.
4/ Total imports from U.S.
5/ Shipments.

Table 2.—Prices of selected meals: c.i.f. European ports and U.S. soybean meal, Decatur, average annual, 1955-62, quarterly 1961-62, monthly 1962-63.

Period	c.i.f., European ports				Decatur
	Peanut meal, Nigerian, 56%, bagged	Linseed meal, Argentine, 39%, bagged	Fish meal, Peruvian, 65%, bagged	Soybean meal, Canadian, 45%, bagged	Soybean meal, 44%, bulk, unrestricted
	U.S. dol. per metric t.	U.S. dol. per metric t.	U.S. dol. per metric t.	U.S. dol. per metric t.	U.S. dol. per metric t.
1955	112.49	104.92		102.28	62.69
1956	109.56	105.05		98.50	56.54
1957	97.29	84.01		89.86	51.87
1958	87.06	75.38		93.78	61.68
1959	101.05	97.42	1/ 124.59	94.56	62.23
1960	97.96	87.66	103.40	90.58	58.57
1961	92.61	85.43	122.60	99.65	69.61
1962	102.17	95.04	2/ 136.60	105.75	73.25
1961-62:					
Oct.-Dec.	96.01	90.80	126.89	97.23	64.30
Jan.-Mar.	98.60	86.92	3/ 133.99	98.96	65.44
April-June	98.99	90.34	138.32	103.65	71.02
July-Sept.	103.65	98.25	136.59	108.48	79.48
1962-63:					
October	105.46	102.48	137.10	111.61	76.06
November	107.53	101.96	137.10	112.13	77.82
December	109.31	109.53	135.90	112.01	77.71
January	110.56	106.15	134.00	111.85	79.26
February	110.53	100.58	133.10	114.44	80.58
March	106.23	96.09	135.00	111.68	78.04
April	99.12	93.00	130.20	107.11	75.29

1/ December 1959.
2/ Eleven-month average.
3/ Two-month average.

Table 3.—Prices of selected oils and soybeans c.i.f. European Ports, average, annual, 1955-63, quarterly 1961-62, monthly 1962-63.

Period	Soybean oil, American crude, bulk	Cottonseed oil, American BPSY, bulk	Peanut oil, Br. W. African crude, bulk	Coconut oil, Straits 3-1/2%, bulk	Linseed oil, Argentine bulk	Soybeans American No. 2 yellow, bulk	Soybeans, Chinese yellow, bulk
	U.S. cents per pound	U.S. cents per pound	U.S. cents per pound	U.S. cents per pound	U.S. cents per pound	U.S. dollars per bushel	U.S. dollars per bushel
1955	13.3	12.9	13.1	11.5	11.2	3.03	3.13
1956	15.4	16.6	16.7	11.5	14.9	3.14	3.10
1957	13.9	15.9	16.5	11.7	12.2	2.88	----
1958	11.8	1/ 13.2	12.6	13.7	12.0	2.57	2.48
1959	10.5	11.6	13.7	16.8	11.2	2.55	2.49
1960	10.1	10.7	14.8	13.6	11.5	2.50	2.46
1961	13.0	14.7	2/ 14.9	10.8	12.7	3.00	1/ 2.77
1962	10.3	----	12.5	10.3	11.5	2.74	3/ 2.70
1961-62:							
Oct.-Dec.	12.0	14.1	13.7	10.1	13.0	2.71	2.66
Jan.-Mar.	11.8	----	14.1	10.3	12.5	2.76	4/ 2.70
Apr.-June	10.6	----	12.4	10.4	12.0	2.81	----
July-Sept.	9.1	----	12.0	10.2	11.3	2.65	----
1962-63:							
October	9.6	----	11.3	10.5	10.5	2.65	5/ 2.71
November	10.0	----	11.3	----	10.2	2.73	6/ 2.72
December	10.0	----	11.6	----	9.9	2.78	----
January	10.2	----	11.8	11.8	9.6	2.91	----
February	10.5	----	12.0	11.9	9.7	2.99	----
March	10.5	----	12.0	11.9	10.1	2.98	----
April	10.3	----	11.8	11.8	9.9	2.93	----

1/ Six-month average. 2/ Beginning 1961, Nigerian. 3/ Four-month average.
4/ Two-month average. 5/ One-week average. 6/ Three-week average.

Table 4.—WESTERN EUROPEAN COUNTRIES: Poultry meat production,[1] 1957-62, projected 1965

Country	1957	1958	1959	1960	1961	1962 Preliminary	Projected for 1965 3/
	Million pounds	Million pounds	Million pounds	Million pounds	Million pounds	Million pounds	Million pounds
The Netherlands	104.9	123.8	155.2	177.9	191.5	200.0	285.0
Germany, West	165.3	193.6	211.6	222.7	240.3	249.1	325.0
France	727.5	738.3	771.0	805.0	855.0	875.0	1000.0
Belgium-Luxembourg	96.2	103.0	113.3	140.0	164.5	189.6	315.0
Italy	202.2	261.7	293.0	381.6	436.5	451.9	650.0
Denmark	50.8	77.1	99.2	124.9	176.3	193.1	300.0
United Kingdom 2/	314.5	403.0	481.2	575.0	652.0	678.0	900.0
Switzerland	8.8	9.9	10.8	11.2	11.7	12.8	17.0
Spain	-----	-----	-----	116.8	135.8	240.5	400.0

1/ Dressed weight basis.
2/ Production from agricultural holdings.
3/ Projection of 1957-1962 trend adjusted for current trend.

Table 5.—WESTERN EUROPE: Solvent crushing capacity for soybeans, 1962 soybean crushings, 1961 oilseed crushings, total crushing capacity, and estimated crushing rate

Country	Solvent crushing capacity usable for soybeans	Soybean crushings 1962 1/	All oilseed crushings 1961	Crushing capacity and rate of crushings 2/	
	Metric tons	Metric tons	Metric tons	Metric tons	Percent
West Germany	1,850,000	1,000,000	1,540,000	2,200,000	70
France	1,650,000	100,000	952,000	1,800,000	55
United Kingdom	450,000	150,000	975,000	1,400,000	70
Denmark	450,000	350,000	347,000	550,000	63
Italy	450,000	300,000	637,000	1,000,000	64
The Netherlands	400,000	350,000	686,000	950,000	72
Belgium	250,000	150,000	260,000	600,000	43
Spain	75,000	---	1/ 50,000	275,000	--
Other 3/	250,000	125,000	500,000	600,000	--
Total	5,825,000	2,525,000	5,947,000	9,375,000	65

1/ Estimate of U.S. soybeans to be crushed.
2/ Roughly estimated on basis of solvent soybean crushing capacity plus screw press capacity on other oilseeds. Based on 300 days operational rate and stated weekly, and annual capacities of most crushing mills. In most countries of Western Europe, crushing mills operate 5-1/2 days a week but allowances for extra days' work are made up to 18 days or more each year for full 7-day week.
3/ Norway, Sweden, Switzerland; excluding Portugal and Greece.

West Germany

West Germany is the United States' most important European market, and after Japan its most important market for soybeans. Also, it is becoming a large permanent market for soybean meal, but prospects for increased sales of soybean oil are not good.

This valuable market, with a population of 56.8 million people in 1962, expanding at the rate of over 1 percent per year, is the most populated country in Western Europe. Its gross national product and expendable income are expanding and indicate that a growing demand for products which consume soybean products will continue.

Dietary levels in West Germany as measured by caloric value are about the same as they were prewar, but significant trends have taken place in the composition of the diet that have had an influence upon the demand for oilseeds, oilseed cakes, and meals. The per capita consumption of livestock and livestock products and of poultry and fats and oils has increased and the consumption of starchy foods, such as potatoes, grain, and flour, has fallen. As a result, West Germany, while maintaining the caloric level of around 3,000 calories per day per person, has improved its dietary standards greatly since the prewar period. Consumption of protein is estimated at about 74 grams per person and fats and oils at around 184 grams, significantly above the average of any other Western European country. Per capita consumption in 1962 of edible fats and oils including butter averaged 57 pounds, 10 pounds above prewar levels.

When poor harvests of grain, root, and other feed crops occur in Germany, the United States has supplied increasingly larger quantities of feedgrains and soybeans and soybean meal. But with improved livestock feeding practices, much of this fluctuation is expected to be eliminated in the future and imports will remain high.

Rapeseed is the main oilseed crop and production is usually less than 5 percent of oilseed imports, but in 1962 this crop was at record levels of 112,700 tons, or around 7 percent of oilseed imports. Production in 1963 is expected to decrease.

Imports provide more than one-fourth of the calorie value of food supplies in West Germany, about the same as in prewar, but oilseeds and vegetable oil imports supply about 40 percent of the total demand for fats and oils and have been at levels considerably above the prewar.

Only about one-eighth of the total population of West Germany is engaged in farming. Farms are predominantly family size and often are badly fragmented. Nevertheless, mechanization is very far advanced and farming is well diversified. Livestock production has accounted for around three-fourths of agricultural output. Slaughter animals account for about 41 percent, and milk 28 percent, of agricultural output. West Germany also raises large crops of rye, wheat, oats and barley, and potatoes, which are all used for food and feed. Sugar beet products are significantly larger than in the postwar period and provide a valuable contribution to livestock feed in form of pulp and tops.

Livestock products now supply 52 percent of West Germany's demand for fats and oils. Butter consumption is rising. The rapid expansion of the West German economy since the war has influenced favorably the demand for

livestock products in Germany. Import controls and market regulations for grain and other feeds have increased the cost of feed products and thus the cost of producing livestock products.

Oilseeds, edible oils, and certain fats and oils have been free from quantitative controls, but tariff regulations often stand in the way of developing larger markets for U. S. processed vegetable oils. Nevertheless, Germany could import and use significantly more U. S. soybean oil in addition to the soybean oil produced from imported U. S. soybeans, as large quantities of vegetable oils are still being imported for edible use.

Poultry meat consumption per capita in West Germany has more than doubled in the past 6 years, but it is still low compared with consumption in France at 9.5 to 11 pounds per capita. Present trends indicate that a considerable increase in the demand for poultry meat and resulting high demand for protein soybean meal will develop.

Poultry meat consumption in West Germany could expand by more than three times the present rate if consumption is to reach the present level of Canada and the United States in the near future. Annual poultry meat per capita consumption levels in West Germany, in pounds, has increased as follows in the 1955-62 years:

Lb.	Lb.	Lb.	Lb.
1955-3.7	1956-4.6	1958-6.4	1960-10.0
	1957-5.3	1959-8.3	1961-11.4
			1962-12.3

While the poultry meat consumption is the important indicator of the demand for high-protein soybean meal, because West Germany is a large importer of poultry meat, this demand is more directly related to the domestic production. Poultry meat production in West Germany has increased more than 75 percent since 1955 and future production will be at an equally rapid rate of expansion. As a result, demand for soybean meal in poultry feed can be expected to increase by 50 percent by 1965.

Total consumption of poultry meat in the June-July 1961-62 period was 350,000 tons of which about two-thirds was imported. The following production rates have been achieved:

	Mil. lb.	Mil. lb.	Mil. lb.
Average 1951-55	—123.0	1957—165.3	1960—220.5
1955	—136.7	1958—174.6	1961—240.3
1956	—143.3	1959—211.6	1962—249.1

The estimated number of broilers produced in Germany during the same period, in millions, would therefore be around:

	Mil.	Mil.	Mil.
Average 1951-55	—41	1957—53	1960—74
1955	—45	1958—58	1961—80
1956	—51	1959—71	1962—83

Meat production in West Germany in recent years has not increased rapidly, but West Germany now consumes around 112 pounds per capita, which is not as high as in France or the United Kingdom and Denmark, but is well above 1951-55 levels.

During the period from 1951 to 1961, meat consumption increased about 20 percent in West Germany. Meat consumption per capita has been as follows:

	Lb.	Lb.	LB.
Average 1951-55	93	1957—108	1960—106
1955	—101	1958—111	1961—110
1956	—106	1959—103	1962—118

Meat production in Germany in the past 3 years has not increased significantly, but nevertheless is up nearly one-third over the 1951-55 level: 1/

	Mil. lb.	Mil. lb.	Mil. lb.
Average 1951-55	4,681	1959—5,954	1961—6,008
1958	—5,918	1960—5,960	1962—6,491

Egg production in West Germany has increased significantly over the 1951-55 average, and in 1960 was nearly 45 percent more than the 1951-55 average.

	Mil.	Mil.	Mil.
Average 1951-55	5,549	1958—6,740	1960—7,895
1957	—6,250	1959—7,090	1961—8,372

Milk production in West Germany has also increased significantly over the 1951-55 average, and in 1960 was nearly 18 percent over the levels of that period.

	Mil. lb.	Mil. lb.	Mil. lb.
Average 1951-55	36,023	1958—39,392	1960—42,439
1957	—38,058	1959—40,657	1961—43,810
			1962—45,395

Average production of milk per cow has also increased:

	Lb.	Lb.	Lb.
Average 1951-55	6,196	1957—6,746	1959—7,286
		1958—7,070	1960—7,482

Butter production has risen with the improvement in feeding practices more so than the increase in dairy herds:

	Mil. lb.	Mil. lb.	Mil. lb.
Average 1951-55	700.5	1957—752.5	1960— 948.4
1956	—736.4	1958—855.9	1961—1,003.0
		1959—885.8	1962—1,037.0

1/ Carcass meat basis: includes beef, veal, pork, lamb, goat, and horse meat; excludes edible variety meats, lard, poultry and rabbit meat.

Oilseeds.—West Germany is the largest importer of oilseeds in Western Europe and, in the world, second only to Japan. Its imports of oilseeds have increased more than four times since 1950.

In 1962, West Germany imported a postwar record of nearly 1.7 million metric tons of oilseeds compared with 1.5 million and 1.6 million in 1961 and 1960, respectively. By 1965 Germany is expected to import over 2 million tons of oilseeds; the present trend indicates around 2.2 million tons. It is expected that the bulk of this increase will be in soybeans, which could reach 1.5 million tons, and the U. S. product can be expected to continue to improve its position in this market.

Domestic production of oilseeds is small, but increasing as a result of high price supports. In 1962 rapeseed production amounted to 112,800 tons, or 42,100 metric tons oil content, compared with around 74,400 tons, or 30,000 metric tons of oil in 1961. In 1963 production is expected to decline.

Soybeans are by far the major oilseed imported, in recent years accounting for around two-thirds of imported oilseeds. The imports of soybeans have increased more than five times since 1954, reaching almost 1.1 million tons in 1962. The United States was the largest supplier providing a record 970,800 tons, or 91 percent of the total compared with a high of 98 percent in 1957 when only 612,400 tons were from the United States. In 1961, the United States supplied 93 percent and the year before only 79 percent, when China was in the market. Brazil increased exports to Germany in 1962, and Chinese beans declined slightly.

Besides obtaining large quantities of soybeans from the United States, Brazil, and China, West Germany also purchases large quantities of peanuts from Nigeria and other African countries and from India. Copra is obtained mainly from the Philippines and Indonesia. Flaxseed is obtained from Argentina, Belgium, and the Netherlands. Large quantities of palm kernels are also obtained from Nigeria, Liberia, and Sierra Leone. Imports of sunflowerseed, mustardseed, and other oilseeds are obtained from all parts of the world in quantities ranging from 1,000 to 5,000 tons.

Copra is the second most important oilseed imported, but with total imports only about one-fourth those of soybeans. Peanuts, palm kernels, rapeseed, cottonseed, sunflowerseed are used for edible purposes, and castor beans and flaxseed for industrial paints and varnishes.

Copra is crushed in Germany to produce oil for both the margarine and soap industries.

Oilseed Cake and Meal.—West Germany is also one of the world's largest importers of oilseed cakes and meals and fish meals. (Only the United Kingdom imports more.) West Germany also exports a large volume of materials produced from imported and domestic oilseeds to other countries, particularly in Western Europe.

During 1962, West Germany imported approximately 1.3 million metric tons of oilseed cake and meal compared with 929,000 tons in 1961 and only 774,000 tons in 1958. Imports in 1963 are expected to be as high as 1962 and may exceed that record level.

Soybean meal imports were at record levels in 1962, totaling 227,200 tons, of which 172,400 came from the United States. Soybean meal made up over one-sixth of total imports in 1962 compared with less than 10 percent, or 80,000 tons, in 1961. Other important oilseed meals imported into Germany are copra, linseed, palm kernels, peanuts, sunflowerseed, and rapeseed.

Table 6.—WEST GERMANY: Oilseeds, Imports and Exports, average 1950-54, annual 1955-1962

Metric tons

Year	Soybeans (total)	Soybeans (from U.S.)	Cottonseed	Castor beans	Peanuts (SH)	Peanuts (UN)	Hempseed	Copra
Imports:								
Average 1950-54....	175,230	(95,427)	38,853	3,258	17,490	23,631	56	138,615
1955	458,432	(347,758)	52,217	16,855	16,617	12,335	--	260,586
1956	529,527	(443,481)	47,481	16,684	40,213	15,053	--	298,476
1957	626,650	(612,395)	42,141	18,977	32,950	6,308	--	336,912
1958	616,665	(536,638)	26,261	20,751	88,479	9,632	2,046	248,659
1959	903,283	(674,623)	31,075	21,756	60,416	14,301	2,008	163,226
1960	998,135	(784,535)	--	28,310	52,047	6,440	2,271	249,804
1961	906,837	(842,049)	956	22,479	75,227	8,115	1,841	269,229
1962	1,067,615	(970,826)	23,297	26,678	103,112	7,757	--	232,646
Exports:								
Average 1950-54....	--	--	--	--	10	68	--	--
1955	--	--	--	--	84	80	--	--
1956	44	--	--	--	303	60	--	--
1957	--	--	--	--	204	114	--	--
1958	33	--	--	--	151	11	80	--
1959	13	--	--	--	700	30	95	--
1960	56	--	--	--	564	73	85	--
1961	52	--	--	--	891	112	--	--
1962	55	--	--	--	62	36	--	61

Metric tons

Year	Flaxseed	Poppyseed	Palm kernel	Rapeseed	Mustard seed	Sunflower-seed	Sesame	Other	Total
Imports:									
Average 1950-54....	9,988	1,178	118,003	45,580	2,201	24,540	441	5,703	604,767
1955	4,882	--	116,477	8,322	6,489	22,947	6	23,019	999,184
1956	6,667	--	104,654	6,620	6,647	23,076	268	24,360	1,119,726
1957	6,982	--	81,024	28,522	6,455	21,702	136	25,093	1,233,852
1958	5,532	3,739	115,844	88,892	7,472	19,277	--	2,428	1,255,677
1959	6,373	3,888	132,785	18,172	10,546	23,071	--	1,377	1,392,277
1960	8,630	4,002	155,010	1,688	10,159	22,355	--	697	1,539,548
1961	10,112	4,157	127,782	24,891	181	22,942	--	16,119	1,490,868
1962	11,576	--	124,091	31,197	--	20,634	--	24,270	1,672,873
Exports:									
Average 1950-54....	1,487	--	--	250	--	148	--	223	2,186
1955	571	--	--	94	--	3	--	365	1,197
1956	597	--	--	322	--	42	--	1,094	2,462
1957	66	--	--	257	--	39	--	1,508	2,188
1958	122	--	--	287	--	122	--	56	862
1959	19	--	--	287	--	82	--	49	1,275
1960	3	--	--	207	--	22	--	36	1,046
1961	6	24	--	652	34	74	--	87	1,932
1962	--	--	--	486	--	150	--	--	850

Large oilseed crushing and processing plant, the Rhine area, West Germany.

West Germany also exports over 200,000 tons of oilseed cake and meal annually. Exports in 1962 were 224,000 tons, somewhat below the 291,000 tons exported in 1961.

Germany's exports of oilseed cakes and meals in 1962 were made up mainly of soybean meal as in past years. Total exports of soybean meal during the year were 171,100 tons, somewhat below the 234,-650 tons exported in 1961. Exports of rapeseed meal have been around 20,000 tons in the past 2 years and peanut meal around 10,000 tons. Soybean meal has continued to average around 80 percent of total exports. This meal is obtained from domestic crushing of imported soybeans.

Fishmeal imports have expanded rapidly since 1950, totaling a record 338,000 tons in 1962, more than double the 156,000 tons imported in 1959 and three times the amount imported in 1955. Fishmeal imports are expected to continue to increase and may reach close to 400,000 tons in 1963. However, total increase in oilseed meals produced and imported is expected to be substantially above the increased imports of fishmeal.

West Germany obtains oilseed cake and meal from all over the world. Large imports of peanut, linseed, and sunflowerseed cakes and meals are made from the Argentine, and peanut meal is obtained in large quantities from Senegal, India, Pakistan, the Netherlands, and Indonesia. The Philippines supplies large quantities of copra meal and cake. France, the Netherlands, the United States, Uruguay and India supply linseed cake and meal; Belgium, Denmark, the United Kingdom, the Netherlands and the Congo supply large amounts of palm kernel cakes and meals; Italy, USSR., Turkey, and Japan supply sunflowerseed cakes and meals.

The Netherlands, the United States, and Brazil supply soybean cake and meal. France, Italy, and Algeria supply rapeseed meal; Belgium, the Sudan, the Union of South Africa, Brazil, and 15 other countries supply cottonseed and miscellaneous oilseed cakes and meals.

Large exports of soybean meal from West Germany, mainly processed from U. S. imported soybeans, move each year mainly to Sweden, Switzerland, Belgium, France, and Denmark.

Soybean Crushing Industry

Soybean crushing in West Germany has, since 1951 and 1952, become the most important business of the oilseed crushing industry, and over 900,000 tons are handled each year. In 1957 soybean crushings for the first time exceeded above prewar levels.

Table 7.—WEST GERMANY: Oilseed cake and meal, imports and exports, and comparison with fishmeal, 1951-62

Item	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962
Imports:	Metric tons											
Soybean (total)	3,032	27,892	12,128	9,637	9,558	11,539	9,397	35,077	37,328	70,353	79,395	227,195
Soybean (from U.S.)	--	(600)	--	(98)	(2,124)	(5,175)	(4,739)	(3,976)	(13,895)	(45,839)	(42,300)	(172,402)
Copra	13,816	23,400	36,143	64,161	64,123	76,471	92,995	109,494	135,630	146,225	161,919	181,144
Peanut	9,288	37,860	16,916	31,925	38,046	36,539	45,312	159,081	88,101	58,526	88,450	97,342
Linseed	22,156	52,734	54,143	73,915	75,309	85,080	100,055	194,377	165,594	161,726	183,194	232,925
Palm kernel	4,308	20,847	40,414	70,820	84,578	115,878	135,590	164,441	194,783	178,835	181,006	210,422
Sunflowerseed	2,361	20,982	16,356	26,373	25,557	27,109	28,469	42,879	72,385	50,394	39,812	64,874
Rapeseed	---	19,608	13,191	6,344	13,375	9,847	6,846	2,015	29,924	27,526	18,876	36,158
Other	---	33,577	33,203	38,090	46,188	49,845	47,474	67,135	138,093	169,090	175,831	214,842
Total	54,961	236,900	222,494	321,265	356,734	412,308	466,138	774,499	861,838	862,675	928,483	1,264,902
Fishmeal	32,189	46,150	48,579	80,888	86,280	97,817	141,008	132,199	157,548	192,900	273,670	338,517
Exports:												
Soybean	---	---	97,774	96,914	170,269	234,108	197,357	116,734	177,776	205,537	234,653	171,069
Copra	---	10,338	18,775	---	27,305	26,123	18,605	11,521	1,605	5,488	3,547	2,608
Peanut	---	---	13,954	9,130	4,515	6,333	2,209	12,277	11,073	7,275	9,454	11,498
Linseed	---	---	15	---	30	80	---	148	1,126	1,991	908	418
Palm kernel	---	---	2,636	10,226	10,665	1,556	123	1,139	105	842	20	42
Sunflowerseed	---	---	2,750	6,564	4,286	1,867	3,061	1,060	289	2,250	5,670	1,184
Rapeseed	---	---	---	13,510	3,104	5,163	14,968	33,409	9,336	4,846	21,563	19,722
Other	---	---	48,585	35,746	25,532	26,965	22,606	15,340	20,128	17,524	14,989	17,449
Total	---	10,338	184,489	172,090	245,706	302,195	258,929	191,628	221,438	245,753	290,804	223,990
Fishmeal	---	---	222	955	1,250	1,056	1,673	2,184	8,325	5,671	5,000	3,708

Table 8.—WEST GERMANY: Oilcakes and meals and fishmeal, supply and distribution, annual, 1958-63

Item	Oilcakes and meals						Fishmeal					
	1958	1959	1960	1961	1962	1963 1/	1958	1959	1960	1961	1962	1963
	1,000 metric tons	1,000 metric tons	1,000 metric tons	1,000 metric tons	1,000 metric tons	1,000 metric tons	1,000 metric tons	1,000 metric tons	1,000 metric tons	1,000 metric tons	1,000 metric tons	1,000 metric tons
Supply:												
Beginning stocks, January 1 . . . . . 2/	75	55	114	81	27	36	1	2	6	1	11	8
Production:												
From imported oilseeds							80	93	82	75	87	90
Soybeans	487	714	789	735	867	935						
Copra	87	57	87	94	81	90						
Palm kernels	59	68	79	65	63	70						
Peanuts (shelled)	41	28	22	27	45	45						
Sunflowerseed	6	11	11	8	4	15						
Rapeseed	49	10	1	14	17	17						
Other	24	30	15	11	12	28						
Total	753	918	1,004	954	1,089	1,200						
From domestic oilseeds 3/	31	31	35	39	57	50						
Imports:	674	862	863	929	1,265	1,260	133	156	197	274	338	365
Total supply	1,533	1,866	2,016	2,004	2,438	2,546	214	251	285	350	436	463
Distribution:												
Exports 5/	200	221	246	291	224	220	4	8	7	5	4	5
Feed consumption 6/	1,278	1,531	1,689	1,686	2,179	2,277	208	237	277	334	424	450
Ending stocks, Dec. 31	55	114	81	27	36	49	2	6	1	11	8	8
Total distribution	1,533	1,866	2,016	2,004	2,438	2,546	214	251	285	350	436	463

1/ Forecast.

2/ Estimated stocks in the hands of oil mills, importers and the Federal Government.

3/ All rapeseed.

4/ In 1961 imports consisted of linseed (20%), palm kernels (20%), coconut (17%), peanuts (10%), soybeans (9%), other (24%).
In 1962 imports consisted of linseed (18%), palm kernels (17%), copra (14%), peanuts (8%), soybeans (18%), other (25%).

5/ In 1961 exports consisted of soybean meal (81%), rapeseed (7%), peanut (3%), other (9%).
In 1962 exports consisted of soybean meal (76%), rapeseed (9%), peanut (5%), other (10%).

6/ Around 2,000 tons consumed for other uses.

West Germany was the original home of the soybean solvent extraction industry. Failure of the industry to reach prewar levels was due primarily to destruction of the solvent-extracting industry by the war and to abundant supplies of other oilseeds and oilbearing materials, particularly copra, palm kernels, peanuts, and cottonseed at comparatively low prices. Also there has been an abundance of low-priced butter and marine oils.

West Germany has 15 large and 18 small oilseed crushing mills that produce vegetable oils for edible and inedible liquid oil use and for its margarine industry and oilseed meals for the feed-mixing industry. Hamburg is the largest center for oilseed crushing and six of these mills are located there, most of which crush soybeans. There are also some large mills in the Rhine Valley. The centers are Krefeld and Neuss-Rhein.

The industry of West Germany, including one small mill in Berlin, can crush around 2 million tons of oilseeds annually. The industry now operates at about 75 percent of capacity.

The West German crushing capacity for soybeans at 13 solvent-extraction mills totals nearly 1.9 million tons, including that of the continuous solvent extraction equipment of three re-worked mills that will be in operation with new equipment by the fall of 1963. The total crushing capacity of the German oilseed crushing industry will thus rise from around 2 million tons to between 2.1 million and 2.2 million.

This includes the capacities of many small screw-press plants that crush locally produced rapeseed and other oilseed mills that have crushing capacity for copra and linseed and other high oil content seeds that are first-pressed and often second-pressed in screw-presses before extraction with solvent equipment.

German crushing costs are very low and may run just slightly above those in the United States. Thus costs here are reported at around $10 to $12.50 per ton for soybeans. Labor costs for common labor in oil mills is roughly 75 cents per hour. It has been stated that the European crushing industry works on a lower margin than that of the U. S. crushing industry.

Nearly all of the German soybean crushing mills are now toasting their soybean meal.

Active Soybean Crushing Mills, Refineries, and Large Margarine Producers, 1962

Mills Crushing Soybeans and Other Oilseeds and Refining Vegetable Oils

Stettiner Olwerek in Hamburg, A. G., Hamburg
Olwerek Noury & van der Lande G.m.b.H., Emmerich
Werhahn & Nauen, Neuss
C. Thywissen, Neuss/Rhein
O. & L. Sels, Neuss/Rhein
Jb. Schmidt Sohne, Odernheim/Mainz
Brokelmann & Co., Hamm
P. W. Kallen, Neuss/Rhein
Noblee & Thorl G.m.b.H., Hamburg-Harburg
(no crushing)

Mills Crushing Soybeans and Other Oilseeds, Refining Vegetable Oils, Hydrogenating and Manufacturing Margarine

Margarine Union G.m.b.H., (Unilever) (See IV)
Walter Rau A. G., Neuss/Rhein
Holtz & Willemsen, Krefeld-Urdingen
Harburger Olwerke, Brinckmann & Mergell, Hamburg-Harburg
Hansa-Muhle A. G., Hamburg Williamsburg
(Associated with Walter Rau A. G., Neuss/Rhein)

Leading Plants Processing Margarine Only

Holsteinisches Margarinewerk Elbgau, Hamburg
Holsteinische Margarinewerke Wagner, Elmshorn
Benedikt Klein Margarinewerk, Koln
Margarinefabrik Max Isserstedt, Wuppertal
Ernst Hofler, Nurnberg
Munsterlandische Margarine-Werke J. Lulf Osterwick
Margarine-Werk Saar Gebr. Fauser, St. Ingbert/Hamburg

There are two other margarine plants that have refineries.

Fritz Homann A. G., Dissen
Westfalisches Margarine-Werk Wilhelm Lindemann, Doberg

Plants Belonging to Margarine Union (Unilever) G.M.B.H.—Hamburg Crush Soybeans and Other Oilseeds

F. Thorl's Vereinigte Harburger Olfabriken, Hamburg
Verein Deutscher Olfabriken, Mannheim
Margarine Union G.m.b.H., Spyck bei Kleve

Plants Refining Vegetable Oils

Olwerke Germania, Emmerich
Olivia Olwerke, Kleve
Fettraffinerie, Brake

Soybean Meal in Mixed Feed and Other Uses

Western Germany has one of the largest livestock herds in Western Europe and the market potential for soybean meal is greater than present use.

The number of cattle, both dairy and beef (13.4 million in 1963), is second only to the number found in France. Western Germany has approximately 5.9 million head of dairy cattle, about half as many as France. Most of the 10-percent increase in cattle numbers since 1951-55 has taken place in the beef cattle.

Hog numbers have made an important increase in Western Germany—nearly one-third since 1951, reaching 17.2 million in 1962. Production fell to 16.9 million at the beginning of 1963.

The number of sheep in Germany, however, is falling. In 1963 Germany had only around 1 million head, about two-thirds of the number found there in 1951-55.

Table 9. — WEST GERMANY: Livestock and poultry numbers, average 1951-55, annual 1956-63

Type	Average 1951-55	1956	1957	1958	1959	1960	1961	1962	1963
	Thous.	Thous.	Thous.	Thous.	Thous.	Thous.	Thous.	Thous.	Thous.
Cattle:									
Dairy	5,800	5,641	5,612	5,599	5,548	5,670	5,797	5,895	5,920
Beef	5,746	5,947	6,238	6,410	6,579	6,810	7,070	7,386	7,430
Total	11,546	11,588	11,850	12,009	12,127	12,480	12,867	13,281	13,350
Hogs	13,182	14,593	14,502	15,495	14,734	14,876	15,776	17,218	16,875
Sheep	1,495	1,188	1,146	1,127	1,106	1,084	1,032	987	974
Poultry	59,108	52,302	55,977	56,834	60,011	60,033	65,838	66,036	---

Table 10.—WEST GERMANY: Mixed feed production by type
Fiscal Year 1952-53 to 1961-62 and Calendar Years 1959-62 1/

Year	Cattle	Calves	Hogs	Poultry	Horses	Others	Total
	1,000 M. T.	1,000 M. T.	1,000 M. T.	1,000 M. T.	1,000 M. T	1,000 M. T.	1,000 M. T.
Fiscal Year:							
1952-53	312.8	6.2	153.3	390.6	14.4	16.6	893.9
1953-54	345.9	16.3	237.9	595.1	14.9	17.3	1227.4
1954-55	428.0	24.8	423.9	757.7	15.8	23.8	1673.9
1955-56	497.2	39.3	604.4	776.4	12.1	38.3	1967.7
1956-57	551.7	52.3	744.2	875.7	11.2	39.6	2274.7
1957-58	676.7	62.7	762.2	1063.6	10.3	28.4	2598.9
1958-59	736.3	75.8	852.8	1215.2	8.9	34.9	2923.9
1959-60	956.5	89.1	1065.7	1465.4	11.2	46.0	3633.9
1960-61	835.6	90.7	1022.3	1562.0	8.6	56.9	3576.1
1961-62	1043.8	113.2	1416.8	1931.0	----	99.7	4604.5
Calendar Year:							
1959.	901.0	85.4	949.6	1335.9	9.8	41.0	3322.7
1960.	881.3	87.2	1074.2	1494.0	9.8	45.8	3592.3
1961.	843.9	93.7	1104.2	1726.4	9.0	76.1	3853.3
1962.	1135.1	121.1	1637.3	2062.7	---	129.5	5085.7

1/ Including West Berlin; Saarland included since July 1959.

Federal Ministry of Food, Agriculture and Forestry.

Poultry numbers increased 10 percent in 1961 and 1962 and remained above the 60 million raised in previous years. Expansion in production of broilers in future years, however, is expected to be significant.

The mixed feed industry in West Germany has developed rapidly during the past decade and has established the largest demand for soybean meal. In many of its new plants the industry utilizes the most modern methods of mixing. The formulas include vitamins, minerals, and antibiotics as well as large quantities of toasted soybean meal and other high-protein oilseed meals. The country's exports and imports of ready-mixed feeds are nominal.

The West German mixed-feed industry is expected to continue to expand and increase production as feeding practices change and improved feeding methods are adopted. Over 5 million tons and 3.8 million tons of mixed feed were produced in 1961 and 1962, respectively. Production in 1962 was more than double the 1957 rate. Production could be well over 6.5 million tons by 1965.

The increase in the utilization of oilcakes and meals in the past 3 years (1959-62) has been 650,000 tons. If, during the next 3 years, the total increase in utilization is only 500,000 tons, the demand for 300,000 tons to 400,000 tons protein as soybean meal appears reasonable.

Consumption of oilcakes and meal in mixed feed is estimated to be around 55 to 60 percent of the total utilization and the balance of the protein, or 40 to 45 percent, is sold direct to farmers. But this practice is changing. Many of the large crushing mills distribute direct to farmers through local cooperatives and dealers. Most of this meal is fed to cattle and hogs.

Poultry feeds make up from 40 to 45 percent of the mixed feed and this percentage appeared to be growing before 1962 when hog feed production jumped. Expansion in poultry meat production of 100 to 150 million pounds would require an additional 150,000 to 200,000 tons of soybean meal.

The quantity of soybean meal used in mixed feeds in Germany is restricted by the presence of an old (1927-30) feed law that limits the use of vegetable meals in certain feeds. However, the increase in the use of fishmeal, is directly related to these laws to the degree that they provide for the use of larger percentages of these feed supplements. For example, soybean meal is limited to the percentage of 45 in some poultry feeds, but fishmeal and other animal protein can make up 50 percent (30 percent for the former and 20 percent the latter).

The general practice is to have about 20 to 28 percent of the total ingredient content of mixed poultry feeds as soybean protein. For concentrates the percentage of soybean meal is much higher and to obtain 25 percent of the protein as soybean meal would require the use of 50-percent protein soybean meal.

There are approximately 1,200 mills preparing mixed feed in West Germany. About 45 percent of the mixed feed production in 1955-56 was for poultry, 25 percent for hogs, 25 percent for cattle. That year the industry produced only 1.8 million metric tons of mixed feed and utilized 700,000 metric tons of grains. The balance was oilseed cake and meal and fishmeal and other animal protein and milling by-products.

Since 1952-53, mixed feed production had increased nearly fourfold by 1960-61 and almost sixfold by 1962.

The main types of mixed feeds produced in West Germany in 1952-53, compared with 1961 and 1962, shows a decreased percentage in mixed feed for cattle and a large increase in percentage of hog feed. Poultry feed

increased, then dropped in 1962 as hog feed increased, as shown in the following:

	1952-53 Percent	1961 Percent	1962 Percent
Cattle	35.7	24.3	24.7
Hog	17.1	28.7	32.2
Poultry	43.7	44.8	40.6
Other	3.5	2.2	2.5
Total	100.0	100.0	100.0

The total consumption of oilseed meals in West Germany in 1961 and 1962 was about 2.2 million tons and 1.7 million respectively, and in 1959 it was 1.5 million. The percentage of this used in mixed feed was probably around 30 to 40 percent. Based on the production of around 3.3 million to 3.8 million tons of mixed feed utilizing around 800,000 tons of high protein, meals provide 10 to 12 percent of the protein required. With production around 5 million tons of mixed feed, consumption of meals in mixed feed is probably over 1 million tons, or 55 percent used in mixed feed.

The use of individual feed grains, protein concentrates, and other feed components in the preparation of industrially produced mixed feeds has undergone a rapid expansion in West Germany during recent years. This development has occurred not only in West Germany but also in other countries of Western Europe where livestock production is a major activity.

In order to develop the most efficient utilization of the available quantities of carbohydrate and protein concentrates available, scientific institutions in West Germany have worked closely with the mixed feed industry in determining the nutritive and the amino acid and mineral requirements for all types of livestock. This has resulted in increased livestock production and expansion.

In addition to research in determining the most efficient feed combinations, feed manufacturers have developed standards and formulas for feeds that help the farmer select a mixed feed for each type of livestock.

Feeding Practices and Use of Soybean Meal.—A large part of the oilseed cake and meal produced and imported into Western Germany goes directly into the hands of the domestic livestock raiser. Farmers are able to obtain supplies through cooperatives who supply local markets.

A large part of the meal used for hogs is mixed with homegrown feeds by the farmers.

German farmers use a large amount of feed grain and root crops in relation to the amount of protein meals fed. Next to the French livestock raiser they used the highest ratio in Northern Europe. The metric tons of high protein fed per animal unit in 1956 was 0.053 and the feed grain fed was 0.419 ton, a ratio of 7.9. This was, of course, a sign of inefficient protein utilization. The feed conversion ratio is now being improved by feeding more soybean meal since the amino acid composition of this high protein meal facilitates the most satisfactory recovery of the full protein value of feed grains.

Oilcakes have historically been fed in Germany and Northern Europe to cattle in large amounts during the long winter season from October through March and April when they are kept under shelter. With the development of the poultry broiler industry and the expansion of the hog raising, the pattern is changing; German farmers are now being educated to the advantages of feeding balanced rations. The increase in the consumption of oilcakes in recent years has been in these industries.

Home-produced feeds, usually rich in carbohydrates, are now being supplemented with more oilseed cakes and meals. But Germany's crops are continually fluctuating and the feed situation in 3 of the last 5 years has been short. As a result many German farmers are starting to use commercial mixed feeds in cattle rations in place of intensifying the production of feeds from their own farms.

Soybean Oil Uses and Demand

Present supplies of soybean oil available to the margarine industry in West Germany are sufficient for the present demand. Margarine processors in Germany say they cannot use over 15 to 20 percent soybean oil in margarine. Unless changes in demand occur, reflecting changes in the quality of margarine demanded by the housewife and in increase in margarine consumption, the demand for soybean oil will remain practically unchanged. The decline in total margarine consumption and increase in butter consumption has been compensated by increased use of soybean oil in margarine.

Because German housewives prefer a margarine that has all the characteristics of butter, hard and quick melting—the characteristics now provided by coconut, palm kernel, and other lauric acid oils—the demand for soybean oil will not increase significantly unless research, now under way, can develop this kind of soybean oil margarine. Some increased use as liquid oil is expected, but this use is not large. If the use of refrigerators continues to grow, the demand for a margarine with the characteristics of U. S. margarine, imparting spreadability, may develop. Much of the German margarine at present is used for cooking, and it contains very little salt, 0.2 percent.

West German refiners and margarine users have a preference for cottonseed oil over soybean oil for use as a salad oil and margarine oil but the use of soybean oil as a liquid oil is expanding.

Marketing and Government Controls

The quantity and quality of U. S. soybeans received in West Germany has been highly dependable, and the industry there recognizes the results of marketing soybeans under definitely prescribed government standards of quality.

U. S. standards and grades are becoming well known to West Germany importers and users and they watch prices closely to determine when U. S. No. 1 soybeans can be purchased at prices that will provide good crushing margins. However, most U. S. soybeans moving to West Germany are No. 2 yellow, and practically all the soybeans imported from the United States are U. S. No. 3 or better. During some years a large part of the beans moving to West Germany are U. S. No. 1 or U. S. No. 2 or better.

German feed mixers have developed a preference for U. S. soybean meal because it contains less moisture than German processed meal and thus has become a better buy for the feed mixers. German trade practices provide for meal to contain 13 percent moisture in the summer and 15 percent moisture in the winter. Also protein content ranges from 42 to 46 percent. The feed mixers like to buy U. S. meal rather than flakes as produced in Germany for their use and many say that they will continue to buy it in the future when the price is competitive.

German mills purchased small shipments of Argentine and Brazilian soybeans in 1962, but still find that the Brazilian beans are hard to process

Table 11.—FATS AND OILS, EDIBLE: West Germany, per capita consumption, fat content basis, prewar and annual 1952-63

Item	Average 1935-38	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962	1963 1/
	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds
Vegetable and marine fats and oils:													
Margarine	10.6	18.7	20.6	21.2	21.8	22.8	21.9	20.9	20.0	19.2	18.1	17.4	17.2
Shortening	2.6	2.5	2.3	2.4	2.2	2.4	2.2	2.2	2.2	2.2	2.4	2.6	2.6
Cooking and salad oil	4.4	3.1	3.6	5.0	5.3	5.7	5.7	6.2	6.4	6.4	6.8	7.3	7.3
Total	17.6	24.3	26.5	28.6	29.3	30.9	29.8	29.3	28.6	27.8	27.3	27.3	27.1
Butter 2/	14.8	11.9	11.4	12.5	12.3	12.6	13.2	13.7	14.0	15.0	15.7	16.0	16.5
Slaughter fats 3/	13.9	12.7	13.1	12.3	13.4	13.2	13.0	12.6	13.0	12.8	13.0	13.7	13.4
Total consumption	46.3	48.9	51.0	53.4	55.0	56.7	56.0	55.6	55.6	55.6	56.0	57.0	57.0

1/ Forecast.

2/ Includes farm butter estimate.

3/ Includes home slaughter estimate.

Compiled from official and other sources with rounded totals.

because of the high moisture content. There have been no complaints about U. S. soybeans and in most instances they are preferred. However, many crushers still remember the low prices and high quality of Chinese soybeans and expect to crush them when they return to the market.

Most German crushers buy in small lots of 1,000 to 2,000 tons of soybeans at the present time, because they say that the market is too indefinite and they must do this for price protection.

The ocean freight rates for U. S. bulk cargo soybeans to West Germany have been reduced considerably in recent years. Mid-1963 rates for contracts have been published from U. S. Gulf ports to Hamburg, West Germany's main soybean port or to Rotterdam and Amsterdam through which some West German soybeans move at $4.35 to $5.00 a long ton. Ocean transport from U. S. Great Lakes' ports to Hamburg and Rotterdam have been published at around $7.50 to $8.75 per ton.

Bulk soybean meal ocean freight rates are about $.50-$1.00 per ton over that for soybeans based on movement to Western European ports.

Government Controls.—West Germany produces only a small quantity of domestic oilseeds and as a result soybeans and soybean cake and meal are free of tariff and import restrictions in West Germany and probably will remain that way under the provision of the European Economic Community, of which Germany is a member. Germany does produce, however, substantial quantities of animal fats, but only enough to meet half of the country's requirements for fats and oils. Therefore, the country must rely on imports to a large extent, and its policies and controls are designed to encourage oilseed imports as well as oilseed cakes and meals for the livestock industry.

Germany, like other countries of Western Europe, has a large oilseed crushing industry, and favors the importation of oilseed first, then crude vegetable and marine oils, then refined and semi-processed oils, and lastly finished products. Crude soybean oil and cottonseed oil pay a 6.5-percent duty and refined oil pays a tariff of 11.5 percent ad valorem as of January 1, 1962. The duty on margarine is prohibitive at 25 percent. This duty has built up a large domestic margarine industry. Per capita consumption is high.

While oilseed meals are imported duty-free into West Germany, the government uses variable equalization fees to bring the price in line with prices of domestically produced feeds. Thus, the feed industry is paying higher prices for feeds than other areas, particularly the United States. This is an apparent contradiction to the report that the crushers are working on smaller margins than U. S. crushers.

Germany protects the domestic rapeseed producers by requiring that 10 percent (formerly 6 and 5 percent) of the oils used in margarine must be rapeseed oil. This program has stimulated production because it forces the processors to pay high support prices for domestic rapeseed. However, as products for export are excluded from this regulation, a manufacturer is considered as having complied with this regulation if he merely purchases at the high fixed price the amount of rapeseed which is equivalent to 10 percent of the fat content of margarine and shortening he produces. He is not obliged to use the oil in his products, but may resell it.

The Government in West Germany has very stringent laws governing the sale and distribution of mixed feeds that are important to the soybean meal markets in that country. Labeling laws are much the same in the United States.

Summary

Crushings in West Germany, of soybeans imported from the United States, reached nearly 1 million metric tons in 1962 when 970,800 tons were imported, up 15 percent over 1961 imports of 842,000 tons. Much new equipment for continuous solvent extraction of soybeans is now being installed in West Germany to replace old inefficient batch and other outmoded solvent processing equipment. It is expected that total crushing of soybeans will rise above 1.3 million tons by 1965.

West Germany's soybean crushers are facing an expanding market for soybean meal and a slow market for soybean oil. They desire to crush more soybeans and maintain their share in this expanding market for soybean meal, but, the marketing problem for oil is restricting them. Nevertheless, they are very much aware of the growing competition from U. S. soybean meal and of its quality advantages.

Soybean meal is expected to remain competitive in the West German market and it is possible that the record of 172,400 tons imported in 1962 (three times that of 1961) may rise to 250,000 tons or over by 1965.

Dull marketings of soybean oil, as reported by most large crushers, is the major problem restricting the expansion of soybean crushings. Until this is solved, West German crushers will not be able to expand activities to meet the full growing demand for soybean meal.

The demand for livestock products in West Germany has increased along with the rise in consumers' income. West Germany's gross national product will have a more modest rate of economic growth during the next few years; the 4-percent rate of 1962 will probably continue. This was less than that of the previous 2 years, but it is still significant. Consumer demand, nevertheless, bolstered by wage increases will probably be strong in coming years and can be expected to stay high. As a result, a high demand for poultry and livestock products will be expected and the market for soybeans and soybean products is expected to continue to expand.

The estimated increased need for soybeans and soybean meal equivalent by 1965 could be as high as 300,000 and 400,000 tons over the 1962 levels. This is based on continued exports of soybean products, oils and meals, and the expansion in the poultry and hog raising industry at the present rate. About 50 to 60 percent will possibly come from increased crushings and about 40 to 50 percent from imports of soybean meal.

The relatively poor harvest of grain and other staple feeding crops in West Germany in past years has increased the demand for soybeans and soybean meals, as has the increase in feed-mixing and development of improved feeding practices. If there is a continued occurrence of these conditions, expansion in soybean imports could well exceed all expected estimates.

U. S. soybeans are providing an ever-growing share of the protein requirements of the German livestock industry. Approximately four-tenths of the protein requirement was provided in 1962 by U. S. beans and meals compared with one-third in 1961. U. S. soybeans crushed in West Germany are solvent extracted and the meal is toasted to a high protein content by improved techniques adopted from the United States by the German oilseed crushing industry. Incentive for the adoption of the toasting process by the industry has been aided by the technical advice of the U. S. soybean industry's Soybean Council of America, showing that toasted soybean meals increased composition of amino acids and improved nutrition. This toasted German soybean meal has been found to be highly digestible and by nutritional experiments has been shown to meet the greatest part of the protein requirements

of all German livestock by supplementation with one amino acid and vitamins. Knowledge of these facts has now been widely dispersed in Germany and it is having a great impetus on the stimulation for and increased use of soybean meal.

Nevertheless, West Germany's soybean crushers complain that competitive conditions are preventing their increased crushing of soybeans. Most complaints, however, are about normal competitive forces in the market place. The most frequent complaint of the large crushers is about the presence of U. S. soybean meal in West Germany at lower prices, at times, than they can competitively market their meal. This, they say, makes operations unprofitable and ruins their usual meal market. Nevertheless, West Germany's demand for oilseed protein is far greater than its relative demand for vegetable oil. Oilseed crushers could not profitably supply all of this demand from crushing. It imported, in addition to the present high domestic production rate for oilseed meals, almost 1.3 million tons in 1962 and 928,500 tons in 1961 of oilseed meals and cakes, including 227,200 tons and 79,300 tons of soybean meal, respectively. It exported 224,000 tons in 1962 compared with 290,800 tons in all meal in 1961, of which 171,100 tons and 234,700 tons, respectively, were soybean meal. Soybean imports represented around 830,000 tons and 725,000 tons of soybean meal produced, making total consumption of soybean meal 886,100 tons and 570,000 tons in 1962 and 1961, respectively.

Crushers in Germany have also complained about the quotation of soybean oil from Israel, Denmark, and elsewhere in the Rotterdam market, which, they say, along with U. S. soybean oil, has a very bearish effect on their domestic market price.

Per capita edible fat consumption in West Germany probably has reached a peak and appears to be leveling off at about 55-57 pounds per person. German butter output has continued to increase and per capita consumption is showing an upward trend and is now about one-third above 1955 levels. However, margarine consumption has fallen somewhat below previous high levels. Prospects indicate that a further increase in butter production will take place as dairy cattle population moves up and as production of milk per cow follows.

West Germany is a large net importer of vegetable oils and, in line with the demand for increased supplies of oilseed cake and meal, has been expanding soybean crushing. Markets abroad for soybean oil could decline, with the result that more soybean oil from domestic crushing will be used at home. Declining imports of vegetable oils and increasing production at home appear to be taking place. In recent years, the size of U. S. cottonseed oil and soybean oil markets in Germany has declined. Nevertheless, total vegetable oil imports are still over 350,000 metric tons.

Oilseed cakes and meals have been relatively high in price in West Germany and total supplies of oilseed cakes and meals may increase somewhat before these prices can be brought in line. The German crushing industry may, in its efforts, bring supplies of total vegetable fats and oils and oilseed meals more in line with the demand, turn to low oil content oilseeds for crushing. If this movement takes place, the increase of U. S. soybean exports to Germany may exceed 400,000 tons. The competitive position of imported oilseed meals, which are still not in plentiful supply, will influence the final outcome in the demand for U. S. soybeans and soybean meal.

France

France, with a total population of over 46 million people, is an expanding commercial market for U. S. soybeans and soybean meal. Imports of U. S. grown soybeans have more than doubled in the past few years, while imports of U. S. processed soybean meals for use in balanced mixed feeds have increased substantially. It appears that the European Common Market will encourage further expansion of the livestock economy and the demand for these products will increase.

France imported 81,600 metric tons of soybeans, all from the United States, in 1961 but imports from U. S. rose to 138,300 tons in 1962 and other countries supplied 4,500 tons. In 1960 France imported 180,200 tons from the U. S. and total imports were 195,600 tons.

Imports of soybean meal totalled around 112,000 tons in 1959 and increased to around 155,000 tons in 1961 but rose to 306,100 tons in 1962. Soybean meal imports from the United States were 3,800 tons in 1959, 19,400 tons in 1960 and 73,000 tons in 1961 and a record 230,800 tons in 1962.

While France is a highly industrialized country, it is also one of the principal agricultural producing countries of Western Europe. Livestock products account for nearly two-thirds of the total farm output. Other major products are wheat, barley, oats, corn, sugar beets, fruit, vegetables and grapes and grape products.

Present income is around $950 per capita. Income levels have been increasing at the rate of around 3 percent to 4 percent per year during the past ten years and are expected to continue upward in the future. Population increase is only around 0.5 percent per year.

The present food consumption levels are slightly over those in the prewar period and average around 3,000 calories per person per day. Present trends in consumption indicate an increase in use of livestock products and a decline in use of grain and grain products. Protein consumption in France averages around 87 grams per person per day. This is one of the highest consumption levels in Europe, surpassed only by Denmark and Ireland. Fat consumption, at 109 grams, is below many other Western European countries.

The economy of France has continued to improve and is currently very strong. Gold reserves have replaced deficits. Although foreign trade has been liberalized considerably, many commodities, including vegetable oils and oilseeds, are still under Government control.

Fats and oils and oilseed meals are some of the few products that require imports of supplies from abroad. France is, as a result of the lack of self-sufficiency in certain products, the world's fourth largest importer of agricultural products, close after West Germany. France exports wine, wool, wheat, feed grains, and sugar and imports fats and oils and oilseed meal, and many other products. A substantial part of the country's agricultural trade, particularly oilseeds, fats and oils, is with former French areas.

The farm population represents about one-fourth of the total population. Arable land constitutes about 39 percent of the total area, meadows and pastures 24 percent, forest 21 percent, and other land 16 percent. The farms in France are mostly owner operated and, particularly in the north, are fairly large as compared to other Western European areas. There appear to be greater possibilities for expanding production with farm mechanization.

Poultry meat consumption in France, of about 18 pounds per capita, is highest of any country in Europe. Most is supplied by domestic production. Demand for soybean meal could increase significantly if modern feeding techniques could reduce prices.

Poultry meat consumption in France increased one-fifth during the 1955-1961 period, with annual per capita consumption as follows:

Lb.	Lb.	Lb.	Lb.
1955–15.3	1957–16.4	1959–17.0	1961–18.0
1956–16.2	1958–16.5	1960–17.6	1962–18.2

French imports of poultry meats in 1960 totalled around 4.7 million pounds compared with 2.3 million in 1959 and 1.6 million in 1958. Exports were about the same, and in 1960 totalled 4.5 million pounds compared with 4.0 million in 1959.

Poultry meat production is the best indicator of the growing demand for soybean meal and it increased nearly one-third during the period 1955-1961, as shown:

	Mil. lb.	Mil. lb.	Mil. lb.
Average 1951-55	—602.0	1957—727.5	1960—805.0
1955	—661.4	1958—738.3	1961—855.0
1956	—705.5	1959—771.0	1962—875

The number of broilers raised is estimated for the same years as follows, revised on a basis of 3.74 pounds or 1.7 kilo, for an average bird.

	Mil.	Mil.	Mil.
Average 1951-55	—161	1957—194	1960—215
1955	—177	1958—197	1961—229
1956	—189	1959—206	1962—235

Meat production in France in 1951-55 averaged around 112 pounds per capita. Consumption has been as high as 126 pounds, or 7 percent above earlier levels. This is the third highest consumption rate in Western Europe, exceeded only by the United Kingdom and Denmark.

Average per capita meat consumption follows:

Lb.	Lb.	Lb.
1951-55–112	1956–125	1959–119
1955 –123	1957–126	1960–120
	1958–122	1961–129
		1962–130

Meat production, a less important indicator of demand for oilseed cakes and meals than poultry meat production, has increased as a result of high consumption and export subsidies as shown:

Mil. lb.	Mil.lb.	Mil. lb.
Average 1951-55—4,811	1958—5,462	1960—5,598
	1959—5,473	1961—5,921

The dairy industry offers a large potential market for oilseed cakes and meals, particularly peanut meal which is often sold direct as the industry has

expanded rapidly in numbers. Milk production in France has increased rapidly, but feeding practices are not on a level with other Western European countries, and unit production is low. However, it is expected that the yield per cow will increase in the future, as better feeding practices and herd management practices are adopted. Milk production expanded as shown:

Mil. lb.	Mil lb.	Mil. lb.
Average 1951-55—38,051	1957—46,762	1960—49,940
	1958—46,989	1961—52,846
	1959—44,719	1962—52,210

However, annual production of milk per cow is low and now below the 1951-55 average, as indicated:

Lb.	Lb.	Lb.
Average 1951-55—5,630	1957—4,833	1959—3,727
	1958—4,771	1960—5,090

Egg production in France has increased nearly one-fourth over the 1951-55 average and was as follows:

Mil.	Mil.	Mil.
Average 1951-55—7,200	1958—9,000	1960—9,000
1957 —8,750	1959—9,500	1961—8,500

Demand for Soybeans and Soybean Cake and Meal

Oilseeds.—France produces a domestic crop of rapeseed, averaging around 100,000 to 150,000 tons per year, also, small amounts of navette, poppyseed, flaxseed and other minor oilseeds and materials. Sunflowerseed production has increased from 3,000 tons in 1960 to 28,000 tons in 1962. Continued increase in production is expected, but rapeseed production is declining despite the fact that the two oilseeds are grown in different areas. Total production in 1962 was 223,500 tons. This supplies less than 10 percent of the demand for edible and industrial oils and oilseed meal. It is, therefore, necessary for the country to obtain large quantities of oilseeds and oilseed products from abroad. Also, a small quantity of edible olive oil is produced from the domestic crop and small amounts of domestic olive cake are made available for the livestock industry.

France is one of the large importers of oilseeds, oilseed meals, fats, and oils in Western Europe. In recent years, there has been an increase in the proportion of these products from the United States. The French Government has maintained its source of supply for oilseeds and fats and oils and other oilseed products in French colonial areas and as a result is still importing about 60 percent of total requirements from these areas, particularly West Africa. However, these countries are tending to diversify their exports and France is seeking supplies of soybeans and soybean meals in the United States and other oilseeds and oilseed meals in Eastern Europe and Asia. The volume of soybeans imported into France has risen considerably in the last 10 years and in 1960 record imports were made. Other oilseed imports, in flaxseed, shelled peanuts, and castor beans have increased significantly in the past 10 years, along with soybeans, while those of copra have been erratic

Table 12.—FRANCE: Oilseeds, imports and exports, average 1950-54, annual 1955-1962

Years	Soybeans (total)	Soybeans (from U.S.)	Flaxseed, other than for sowing	Flaxseed for sowing	Peanuts, Un-shelled	Peanuts shelled,	Copra	Palm kernels	Castor beans	Rape-seed	Other Oil-seeds	Total imports
Imports:	Metric tons											
Average 1950-54	47,285	(36,338)	82,729	8,103	--	245,404	88,436	110,910	12,875	4,301	14,787	614,830
1955	87,339	(77,880)	39,279	9,300	--	365,327	89,703	137,206	22,990	20,668	11,541	783,353
1956	66,703	(55,803)	110,995	7,189	15,395	332,818	91,116	121,268	17,649	9,844	14,308	787,285
1957	68,047	(64,880)	106,380	7,592	17,176	404,701	105,266	111,325	17,236	14,502	18,245	870,470
1958	56,493	(44,898)	129,411	6,704	6,251	405,978	95,655	108,145	21,237	4,538	12,109	846,521
1959	89,400	(75,135)	109,043	4,570	5,583	415,118	76,083	82,112	15,916	4,057	10,590	812,472
1960	195,567	(180,622)	80,141	--	--	438,424	86,204	95,035	24,995	39,310	8,136	967,812
1961	81,557	(81,557)	78,779	--	--	497,658	89,244	82,581	10,269	33,840	4,331	878,259
1962	142,743	(138,260)	61,236	--	--	453,821	96,463	82,129	26,101	15,670	12,207	890,370
Exports:												
Average 1950-54	211	--	24	1,124	--	--	--	--	3	6,671	5,554	13,587
1955	6	--	27	551	--	--	2	--	1	21	4,506	5,114
1956	11	--	55	420	--	--	1	--	--	3,379	2,901	6,767
1957	6	--	50	581	452	--	2	--	--	30,180	7,061	38,332
1958	--	--	75	287	346	--	--	--	--	18,754	2,180	21,642
1959	--	--	--	387	583	--	--	--	785	35,867	817	38,439
1960	1	--	59	532	420	--	--	--	2	11,019	835	12,868
1961	--	--	271	---	988	--	--	--	--	31,457	1	32,717
1962	--	--	141	---	2,725	--	--	--	--	82,000	1,647	86,513

1/ Sunflowerseed, poppyseed, hempseed, sesame, peanuts, illipe nuts, cottonseed and mustard seed.

Table 13.—FRANCE: Oilseed cake and meal, imports and exports, annual 1950-1962.

Kind	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960	1961	1962
Imports	Metric tons												
Cottonseed	9,305	1,284	5,553	14,262	9,664	16,536	16,405	4,447	2,606	28,102	20,493	21,332	45,083
Rapeseed	12,826	1,325	592	247	--	54	--	3,701	636	3,785	1,781	1,546	10,615
Peanut	58,427	64,407	36,640	10,420	51,652	42,377	62,499	59,689	111,298	110,908	67,128	78,411	191,363
Sesame	--	--	--	--	--	--	--	--	--	--	--	1,287	737
Soybean (total)	6,041	1,245	3,678	11,731	5,300	31,190	40,440	49,276	52,821	112,007	100,045	155,452	306,146
Soybean (from U.S.)	(945)	(1,099)	(1,663)	(2,421)	(1,721)	(8,826)	(5,183)	(938)	(1,268)	(3,805)	(19,440)	(73,012)	(230,791)
Linseed	195,525	119,289	783,273	111,527	683,391	697,467	87,291	53,912	59,041	71,026	85,740	100,720	128,852
Sunflowerseed	--	--	--	--	--	--	--	--	--	--	--	23,796	45,974
Copra	1,067	11,801	5,005	8,654	13,802	9,085	14,436	7,492	4,610	5,815	5,350	4,145	6,211
Other	9,452	4,186	11,328	24,671	18,571	185,658	26,962	11,058	9,466	48,008	2,691	8,028	20,953
Castor	--	--	--	--	--	--	--	--	--	--	--	26,506	37,630
Total	292,643	203,537	846,069	181,512	782,380	982,367	248,033	189,575	240,478	379,651	283,228	421,223	793,564
Exports													
Soybean	278	200	43,103	--	7,151	13,165	3,749	3,579	55	972	9,249	2,153	3,649
Copra	6	550	1,082	181	1,918	2	18,886	40,396	23,770	19,262	5,171	4,314	1,292
Rapeseed	--	--	--	--	--	--	15,692	14,517	14,999	14,333	10,211	19,989	6,997
Peanut	256	262	54,702	152	55,428	10,994	9,133	16,280	501	4,198	--	59	11,050
Cottonseed	2,816	281	555	--	104	177	20	--	--	--	--	--	--
Palm kernel	258	5,062	33,191	6,517	60,366	43,989	--	--	--	--	18,779	18,686	7,383
Sunflowerseed	149	87	1,042	180	75	14	76	3,281	3,225	3,626	--	1,012	86
Linseed	261	94	4,410	--	28,828	17,999	20,753	19,522	1,428	6,926	19,113	22,744	9,525
Oilcake from olives	45	429	953	321	2,750	30	345	959	272	--	173	--	--
Other	34,906	24,824	62,396	39,332	29,994	25,809	1,447	2,980	4,672	2,658	23,554	13,814	9,028
Total	38,975	31,789	201,434	46,683	186,614	112,179	70,101	101,514	48,922	51,975	86,250	82,771	49,010

but have tended to decline, as well as those of palm kernels. United States has supplied France with flaxseed in some years of ample supplies.

Besides obtaining soybeans from the United States and peanuts from former French areas, particularly Senegal—which also supplies nearly 200 million pounds of peanut oil each year—France secures oilseeds from many other areas of the world, as well. Peanuts are obtained from Nigeria, the Sudan and the Cameroons; copra from Indonesia, French Pacific areas, New Hebrides, Togoland, and the Philippines; palm kernels for crushing from former French areas of West and Equatorial Africa. Some soybeans are imported from China.

Industrial imported oilseeds and materials are mainly castor beans and flaxseed. Castor beans are received from African areas and China, while flaxseed imports come mainly from Canada and the United States.

Oilseed Cake and Meal.—France has been using considerably more soybean meal in recent years in place of its former large consumption of linseed meal. Imports of soybean meal have been high in recent years, and in 1961 and 1962 imports of this meal reached record levels of 306,000 and 155,000 tons.

French consumers prefer white meat strains, the type produced by 44-percent soybean meal. White-legged chickens were formerly preferred, but this is now less of a problem. At present, 80 percent of the soybean meal used in France is in poultry feeds, about 10 percent in hog feed and 10 percent in cattle and other feeds.

It has been shown that growth in use of soybean meal in France has been directly related to growth of the mixed-feed industry in the poultry production areas. Feed mixers now use 20- to 30-percent soybean meal in their broiler and chicken feeds in Brittany. Some other cattle feeds, however, take as little as 5 percent; young pig feeds, 5 to 7 percent; and sheep feeds 5 to 10 percent. Most feed mixers in Brittany have increased feed production more than double during 1956-1961. Furthermore, they expect production to double again by 1965.

Another factor favoring expanded imports and production of soybean meal in France is the higher price obtained from mixed feeds containing soybean meal because results of feeding can be guaranteed. Also, it appears that larger quantities of peanut meal are being imported. Total supplies of oilseed meals in 1961 imported into France are at levels nearly doubled those in 1950 and 1951; however, it appears that in certain years, 1952 and 1955, particularly large imports of flaxseed meal were made into France and substantial supplies were carried over in those years. Soybean meal constituted around one-fourth of total supplies of oilseed meals available in France in 1961; however, peanut meal still comprised the major oilseed meal used and represented over one-third of total supplies. Substantial quantities of peanut meal, approximately half of total French production, is crushed domestically; in addition, large quantities are still imported from former French colonial areas.

Total supplies of oilseed cakes and meals in 1962 were at record levels of around 1.35 million tons for the second year; production was around 533,000 tons and imports at a record 794,000 tons. The country exported around 49,000 tons of cake and meal that year compared with 114,000 tons in 1961. Stocks were at low levels. Stocks of oil cake and meal have been declining in France in recent years, as domestic consumption continued upward. Consumption of oilseed meals in 1962 totaled 1.3 million tons, of which around one-third was soybean meal, considerably more than the level of former years. Consumption of soybean cake and meal in 1958 represented only one-seventh of total consumption.

The major source of peanut cake and meal is West Africa. Soybean cake and meal, besides being imported in large quantities from the United States, is also imported from the Netherlands, West Germany, Belgium and Morocco. Cottonseed cake comes mainly from the USSR, Mexico, and Argentina. Sunflower cake and linseed meal enjoy a good market in France. Sunflower cake is also obtained from the USSR.

France exports some rapeseed cake, peanut cake and corn germ oilcake to Belgium and to the Netherlands. West Germany is a good market for French palm kernel cake and for meal and copra and other oilseed cakes.

Soybean Crushing Industry

The French oilseed crushing industry is made up of 26 large modern solvent extraction mills and 11 small plants, many with refining facilities, and some 5 mills with processing facilities for fats and oils products. Soybeans are crushed, but, the industry is geared to extract peanuts and other oilseed. These mills belong to the National Syndicate of Oil and Meal. The industry, in addition, includes 15 small plants that process fats and oils from fish, animals, and domestic rapeseed and flaxseed, as well as other materials including walnut kernels. These mills belong to the Federation of Metropolitan Oil Mills. France also has many small olive processing plants in the Mediterranean area. The total number of vegetable oil mills registered in 1962 totaled 52. There are many other plants that refine vegetable oil and process margarine.

The industry's capacity for crushing oilseeds is estimated at 1.65 to 1.8 million tons. In 1962, 1 million tons were crushed. The industry operated at about 60 percent of capacity in 1961 when 951,500 tons of oilseeds were crushed.1/ Nearly 15 percent of oilseeds crushed are produced domestically and 85 percent imported. About half of the oilseeds crushed in 1961 were peanuts; less than 10 percent were soybeans.

The oilseed crushing industry in France is technically well developed for crushing soybeans with a few minor exceptions. Of the 37 mills belonging to the National Syndicate in 1962, all were reported to be either continuous solvent extraction or batch extraction equipped. By far the larger percentage are continuous. All of these mills also are equipped to pre-press oilseeds. In some instances, soybeans were pre-pressed before being batch-extracted in order to process the meal fully. Several mills with this type of equipment can crush over 500 tons of peanuts a day.

French oilseed crushers have failed to take advantage of the soybean meal market because of the product's reportedly high cost of processing relative to other oilseeds which their machinery is set up to process, as well as the problems created by marketing of soybean oil. As a result, imported soybean meal can be obtained cheaper than it can be supplied by French crushers at present.

However, for crushing soybeans, many mills are not yet fully equipped to completely process and toast soybean meal. There is a general lack of flaking and toasting equipment, since most mills are set up to process peanuts

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1/ The industry could crush 5,500 to 6,000 tons of oilseeds per 24-hour day for 300 days each year, with 2 to 3 weeks vacation time in August.

Table 14.—FRANCE: Total oilseed supply and distribution, 1961-1962

Item	1961			1962
	Domestically produced	Imported	Total	Total
	Metric tons			
Supply:				
Beginning, January 1	14,651	50,144	64,795	80,464
Production	138,000	------	138,000	223,603
Imports	114,950	757,309	872,259	890,400
Total	267,601	807,453	1,075,054	1,194,467
Distribution:				
Exports	31,728	988	32,716	86,513
Crushing.	224,784	726,672	951,456	1,043,073
Ending stocks, December 31 . .	17,159	63,305	80,464	53,987
Unaccounted for .	1/ -6,070	+16,488	+10,418	+10,894
Total	267,601	807,453	1,075,054	1,194,467
Oil produced . . .	81,271	318,086	399,357	419,450
Meal produced . .	124,714	385,081	2/ 509,795	583,115

1/ Including 6014 unaccounted for, possibly from production.

2/ Including 3,668 metric tons of castor bean pomace.

Compiled from official records.

and other high content oilseeds that have been pre-pressed. However, with the solvent extraction industry in its present state, equipment now on hand is being used to meet the demand, and some new equipment for toasting is being installed as well. Several mills processing soybeans are using the cooking equipment of their expellers; others are toasting the meal in their batch extraction equipment; with some exceptions the industry is not prepared, however, to produce soybean meal meeting U. S. standards.

Crushing costs for soybeans in 1962 were reported around the equivalent of $9.00 to $10.00 per metric ton, or slightly above $8.00 to $9.00 a short ton. Some crushers report that costs are higher in France because of poor quality of beans received, whether U. S. or Chinese. Even if labor costs are considerably less than U. S., and range from 70 cents to $1.00 per hour when all costs are included, higher units of labor are required in France because there is less automation at many of the crushing plants.

Since the war, most of the crushing mills have their own refineries, and in recent years the larger mills have installed modern continuous refining equipment. Also, noticeable at most French refineries are the many new deodorization installations for finishing vegetable oil. With this equipment French oil mills are in a position to manufacture refined vegetable oil of an excellent quality.

The crushing industry is located around Bordeaux, with 3 large plants capable of crushing 225,000 tons annually of unshelled peanuts and soybeans; Marseille, with 5 mills, (4 large and 1 small); and the Paris vicinity with 3 mills. The remainder of the crushing industry is located in the coastal and river port towns of northeastern and western France. Soybeans are crushed mainly at the large northern French mills (at Dieppe, Arris, and the like) and at Bordeaux.

Soybean meal that has been fully processed, desolventized, and toasted now represents over 80 percent of the soybean meal consumed in France.

Soybean Meal in Mixed Feed and Other Uses

Agriculture in France is mainly a combination of livestock and crop farming, with livestock production representing approximately two-thirds of total output. The large French farms are highly adaptable to the support of a concentrated livestock industry.

Since 1951, there has been a continued upward expansion in number of cattle in France, from around 16.5 million in 1951-55 to present levels of around 20 million. France has the largest dairy herds in Western Europe, and numbers are now more than 50% higher than in the 1951-55 period. However, many of the cattle are dual-purpose, and a large number of young stock are kept for breeding.

Hog numbers have increased about one-fourth, from 7.2 million in 1951-55, to 9 million at present. While hogs are raised in all sections, they are concentrated near the feed-grain producing areas. About 40 percent are slaughtered in the farming areas. Emphasis on hog raising is on meat-type rather than on lard or bacon types. However, France is the largest producer and exporter of lard in Western Europe.

The sheep industry has increased somewhat though not as rapidly, and the poultry industry over one-third during the past 10 years. Poultry numbers,

averaging around 115 million in 1961 had increased from around 86.5 million in the 1951-55 period. With this development, there has been a substantial increase in use of toasted soybean cake and meal, and the future potential of this industry promises substantial increased use of this valuable high protein in poultry feeding. France has the largest number of poultry of any country in Europe and has continued to supply other Western European areas with dressed poultry.

Livestock numbers in France were as follows in thousands:

France, Livestock: Numbers by types, average 1951-55, annual 1956-63

Item	Average 1951-55	1956	1957	1958	1959	1960	1961	1962	1963
	1,000 head								
Cattle									
Dairy	6,758	9,115	9,246	9,380	9,460	9,812	10,248	10,489	10,763
Beef & other	9,748	8,457	8,546	8,545	8,948	8,923	9,188	9,519	9,917
Total	16,506	17,572	17,792	17,925	18,408	18,735	19,436	20,008	20,680
Hogs	7,225	7,772	7,728	8,063	8,431	8,357	8,526	9,023	9,076
Sheep	7,725	8,216	8,355	8,572	8,744	8,441	9,043	9,111	8,963
Poultry	86,500	95,650	97,500	101,750	103,000	110,000	105,000		105,000

The expanding feed-mixing industry has created a growing demand for U. S. soybean meal. In 1959, there were 1,070 firms in the mixed feed industry. Production in 1961 was 2.6 million tons. Poultry mixed feeds made up the bulk of the industry and represented 1.2 million tons of production, or 48 percent of the total. Pig feed production was around 733,700 tons, or 30 percent, cattle feed production around 406,100 tons, or 17 percent; and sheep and goat feed, 16,200 tons, or 1 percent. All other mixed feed totaled 102,400 tons, or 4 percent. The French mixed feed industry is located mainly in the poultry-raising areas of Brittany and Normandy, in the northern part of France, and in Morvan in central France.

Feeding practices in France have not reached the level of development found in surrounding areas, particularly Belgium, Netherlands, and Western Germany. However, at the present rate of development, particularly in the poultry industry, feeding practices are changing rapidly and will soon show less lag. As a result, the supply of high protein and total feed grains used by the mixed feed industry is low compared with these other countries and in terms of size of the livestock herds. France uses the lowest cost combinations of protein and feed grain ingredients of any northern European country. In the past few years, there has been an advance in animal nutrition, and these tolerance limits will probably be narrowed. Some feed manufacturers in France now use large amounts of soybean meal as their high protein supplement. In 1956, the level of protein used in mixed feed in France was .03 metric tons of high protein per animal and .343 metric tons of feed grain per animal. The relationship of feed grains to high protein was at a ratio of 11.4 units of feed grains to one unit of protein as compared with a ratio of 5.3 in Denmark, 5.1 in the Netherlands, and 7.9 in Western Germany.

The mixed feed industry, much like that in the United States, is highly integrated with related industries, particularly flour milling, oilseed crushing, sugar factories and fertilizer mixing. These industries integrated into the feedstuffs industry to provide a profitable outlet for by-products. Starting mainly since 1936, they have put their technology and nutritional knowledge to use in developing a new industry that has supplied all types of livestock feeds. Integration was from the following industries in 1958, in percentage of total units related to the industry: 1/

Kind of Industry Integrated with Feed Mixing	Percent of Total Mills Mixing Feed	Total Mixed Feed Production, Percent of
Flour mills	43.5	33.0
Trade in oilseed meals & fertilizers	28.9	26.0
Oilseed crushing	2.6	
Other (veterinary products, breweries, dairies, rice and corn, chemicals, meat, and fishmeal)	6.5	16.0
Total integrated mills	81.5	75.0
Mills not integrated	18.5	25.0
Total	100.0	100.0

Firms that are producing more than 100 tons per day and are highly mechanized have only 3 percent of total national capacity. Firms with daily capacities of 30 to 100 tons, moderately mechanized, have 14 percent of total capacity; small mechanized mills, 55 percent. Nonmechanized units account for 28 percent. Only about one-fifth of mills are modern electrical line mills providing exact balance feeds; several are all-automatic, and most have modern handling, grinding, weighing, and conditioning equipment.

Feed practices in 1958 indicated that an estimated 38 percent of available cake and meal were used in mixed feeds. Peanut cake and meal constituted 46 percent of oilcake and meal used in feed mixing in France; soybean meal followed closely with 28 percent. However, only 42 percent of the total available peanut meal is used in mixed feeds, and around 90 percent of soybean meal is so used. By 1960, the use of soybean meal appeared to be expanding at the expense of peanut meal, as indicated:

1/ France: The Mixed Feed Industry, FAS Report, Agr. 3, July 29, 1959.

Table 15.—FRANCE: Total oilseed and soybean cake and meal, supply and distribution, annual, 1958-1962

Item	Total oilseed cake and meal 1/					Total soybean cake and meal 1/				
	1958	1959	1960	1961	1962	1958	1959	1960	1961	1962
	1,000 metric tons	1,000 metric tons	1,000 metric tons	1,000 metric tons	1,000 metric tons	1,000 metric tons	1,000 metric tons	1,000 metric tons	1,000 metric tons	1,000 metric tons
Supply:										
Beginning stocks, January 1	118	111	81	62	25	16	17	25	11	6
Production 2/.	468	460	518	500	533	41	64	145	63	112
Imports	240	380	283	421	794	53	112	100	155	306
Total	826	951	882	983	1,352	110	193	270	229	424
Distribution:										
Exports	41	49	107	114	49	---	1	9	2	3
Consumption	674	821	713	843	1,264	93	167	250	221	411
Ending stocks, December 31	111	81	62	25	39	17	25	11	6	10
Total	826	951	882	982	1,352	110	193	270	229	424

1/ Preliminary estimates.

2/ Mainly imported oilseeds.

Compiled from official and other sources.

Table 16.—FRANCE: Feedstuff production, poultry feed production, and soybean meal consumption, 1952-1962

Years	Total mixed feed	Poultry feeds		Soybean meal	
	Tons	Tons	Percent of total mixed feeds	Tons	Percent Protein Available
1952.	821,431	235,285	28.6	25,000	16.1
1953.	1,163,366	439,306	37.6	17,500	4.0
1954.	1,074,859	525,208	49.0	26,537	5.7
1955.	1,280,316	733,286	57.4	65,774	8.95
1956.	1,945,805	1,159,220	59.13	90,206	7.8
1957.	1,640,000	773,000	47.1	117,830	15.19
1958.	1,955,542	968,873	49.6	96,017	9.95
1959.	2,238,331	1,078,920	48.1	150,520	13.98
1960.	2,105,304	1,026,870	49.2	222,931	20.5
1961.	2,551,600	1,153,200	45.2	218,000	27.9
1962.	1/ 3,130,910	1,339,294	- - -	411,000	- - -

1/ Preliminary.

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Oilmeal	Amount used in mixed feed		Percent of total		Total marketed 1/	Percent of each kind available used in mixed feeds
	1958	1960	1958	1960	1958	1958
	Metric Tons	Metric Tons	Percent	Percent	Metric Tons	Percent
Peanut	140,000	130,000	45	30	327,000	42
Soybean	87,000	170,000	28	39	96,000	90
Linseed	30,000	35,000	10	8	150,000	20
Other	53,000	105,000	17	23	327,000	16
Total	310,000	440,000	100	100	900,000	38

1/ Estimate.

Further increase in consumption of soybean meal can be expected as demand for mixed poultry feeds increases.

The French are doing much to emphasize the economics of using soybean meal to increase the nutritive value and production efficiency in raising poultry. French feed mixers can utilize soybean meal more advantageously in high quality mixed feed than other oilseed meals, because the former meets demands of livestock producers for more efficient feeds.

Deficit in protein feeding in France is large, and it appears that the amount fed could well be doubled to make the feed grain-protein ratio satisfactory.

Oilcakes and meal provide around 15 percent of the ingredients used in mixed feeds in France, but provide most of the protein value. The composition of the raw materials used in mixed feeds in France in 1958 was as follows:

	Metric tons	Calculated protein value 1/
Cereals and other grains	1,100,000	110,000
Leguminous and cereal by-products	330,000	83,000
Oilcake and meal	310,000	140,000
Feed of animal origin	120,000	60,000
Other	90,000	18,000
Total	1,950,000	411,000

1/ Basis protein cereals and grains 10 percent, oilcake and meal 45 percent, cereal by-products 25 percent, animal feed 50 percent, other 20 percent.

Feeding Practices.—The French livestock industry has not used scientific feeding practices until recent years, and the major portion of the industry does not use "balanced" feeds. In many areas, oilcake is fed directly to livestock and is not balanced with other feedstuffs such as feed grains, fodder and beets, to provide the most economical feed for best production or growth.

About 45 percent of the pastures are located in northern France and the 16 departments of this area, where there is extensive pasture feeding, raise a large percentage of the cattle. Nevertheless, climate and soil conditions provide excellent pasture in all sections, and indicate that France is well adapted to raise cattle, hogs and sheep. Fertilizer is used to produce abundant forage crops, which are fed fresh. This provides large amounts of protein, but there is a lack of minerals, which are found in grain rations.

In France roughage feeding has been particularly important for all livestock, and also for non-commercial poultry raising. With the government's emphasis on production of livestock, dairy and poultry products, continued improvement in feeding practices may be expected. Thus future commercialized production can be expected to provide a significant increase in the demand for oilseed cake and meal.

Despite the advances in nutritional knowledge, French farmers still use large amounts of domestic feed grains and forage without proper protein balances. The farmers often buy oilseed cakes and meals directly from distributors, and do their own mixing.

The volume of oilseed cake and meal fed in France has varied with the harvest of forage, cereal, and root crops. However, prices have often been the important factor in determining the volume of meal fed made from any particular type of oilseed cake and meal. Imports in 1961 of larger quantities of soybean meal, however, were an indication of growing demand for the product, as well as shortages and high prices of competing meals. Demand for soybean meal from the poultry industry is based more on production results than price relationships.

Soybean Oil Uses and Demand

The French consumers' taste preference is for peanut oils and, as a result, soybean oil is not widely known. Since the large market in France is in liquid oils, soybean crushers there, while desiring to crush larger quantities, no doubt will be restricted by the amount of soybean oil that can be sold locally for edible and industrial use, and demand for export. If France should lose its export market for the 6,000 to 10,000 tons of soybean oil to former French territories, particularly Algeria, this would also reduce crushing of soybeans.

French crushers and refiners cannot buy soybeans or soybean oil freely because the government controls, through SIOFA, volume of soybeans to be crushed and volume of soybean oil and other vegetable oils to be imported for food purposes. It can be expected, under the EEC, that imports of oilseeds will not be controlled and that soybeans will be able to move more freely into France. The low price of soybean oil may place it in a more competitive position with peanut oil if a free market price is established. However, the present French laws do not allow anti-oxidants to be used in vegetable oils, and this may affect development and use of soybean oil as an excellent table and salad oil.

Margarine production and consumption is not large in France compared with other Western European countries, but per capita consumption is growing as is butter consumption. Extent of the increased use of soybean oils in margarine and as liquid oil in France will determine the amount of soybeans that the country will crush in future. Per capita consumption of butter and margarine in France in 1956-1961, was as follows:

Butter		Margarine	
Lb.	Lb.	Lb.	Lb.
1956 - 14.3	1959 - 16.9	1956 - 4.6	1959 - 5.3
1957 - 16.1	1960 - 17.0	1957 - 4.6	1960 - 5.5
1958 - 16.5	1961 - 16.1	1958 - 4.9	1961 - 5.7 1/

1/ Estimated.

The estimated vegetable oils used for human consumption in France totaled 450,000 metric tons in 1962; 431,800 tons in 1961; 365,800 tons in 1960 and 354,400 tons in 1959 (crude basis). This is equal to 21.5 pounds per capita; 20.7 pounds, 17.7 pounds, and 17.2 pounds (refined basis excluding olive oil), respectively. While covering only 4 years, these figures point toward increased usage.

The upward trend in margarine and edible vegetable oil consumption would indicate that the country will crush additional oilseeds in the future, but only to the extent that the oil can be marketed as exports or consumed. The rapid increase in butter consumption will limit expansion in consumption of vegetable oils. The increase in butter consumption of nearly three pounds per capita, 1956-1960, and only one pound per capita in margarine, indicates that crushing will be limited to a small increase and that some increase will probably be made in imports of soybean meal rather than those of oilseeds.

Marketing and Government Controls

High cost of marketing in France has held down consumption of oilseed meals and vegetable oils. Some blame has been placed on the high cost of administering regulations and complying with them, but small scale production and distribution must also be taken into consideration.

Feedstuffs manufacturers obtain oilseed cakes and meals through importers or brokers, or direct from the crushers. Often cooperative organizations obtain oilseed cakes and meals direct from crushers and supply them directly to dairy, hog, and poultry users.

Feedstuff manufacturers may sell directly to livestock raisers in the case of small and medium-sized mixers. However, most business in feedstuffs is carried on through local dealers established in villages, who are usually identified with grain and fertilizer selling.

Cooperative stores are important in France and they are often manufacturers as well as retail distributors of feedstuffs. In many cases, independent retail stores have become small producers and packagers of feedstuffs to reduce distribution costs and increase profits. There are about 5,400 dealers of feedstuffs and 1,500 cooperative stores that sell feedstuffs in France.

The numerous and well-developed seaports in France favor importation of oilseeds for processing and oilseed cake and meal in bulk, but size of ships allowed in these ports is now a limiting factor. The country has an excellent and highly developed railway system that favors bulk movement of these products to oil processing and feed mixing plants from crushing mills or from major ports.

Ocean freight rates for bulk U. S. soybeans and soybean meal to northern Europe have been reduced considerably in recent years and the cost of transporting cargo bulk soybeans to Western Europe, including northern France ports, were reduced significantly in mid-1963 to around $4.75 - $5.00 per long ton. Transportation from U. S. gulf ports and from eastcoast ports have been approximately the same. From U. S. Great Lakes to Northern France, with free discharge, have usually been around $1.00 more. Contract cargo rates in 1963 were published at around $7.25 - $7.50 per long ton for U. S. gulf soybean meal to two North France ports.

In France, about 95 percent of the vegetable oils are marketed in one liter bottles. This has resulted in development of special bottling facilities and plants not now of great importance in the United States. Facilities for cleaning, filling, and wrapping of bottles have been developed for handling oils in bottles and packing them in wooden crates of 15 bottles each. Economy has been achieved in distribution of vegetable oils to consumers by large processors, through moving bulk oils in tank cars and trucks to centers where the oils are bottled for local distribution.

Peanut oil with a slight peanut taste is reported to be preferred by the French consumer and this oil, when packaged and labeled as such, in recent years obtains a premium of around 40 Francs/or 0.4NF per kilo equivalent to 4 cents per pound in the U.S. currency over the soybean oil which is not sold as such but as table oil. About 80 to 90 percent of the oil sold in bottles is peanut oil and 10 to 20 percent of the oil is table oil or a mixture of soybean oil, rapeseed oil and other oils.

Labeled peanut oil has been selling for 2.65NF/per liter or 53 cents or about 25 cents per pound bottled.

Unlabeled peanut oil sells for 2.45/per liter or 49 cents or about 22 cents per pound bottled.

Other oils sold as table oil sell for 2.25 NF or 45 cents or about 20 cents per pound.

One of the notable aspects of French marketing of bottled oil is the cleanliness present in all aspects of processing and packaging. French refineries are kept exceptionally clean to comply with government regulations as are packaging plants. Modern, clean, continuous refineries are the general rule in France.

The Soybean Council of America, cooperator with USDA, FAS, is conducting a market development program in France for soybeans and soybean products. The Council has conducted a poultry science seminar to promote balanced feeding in cooperation with French groups and U. S. feed grains, to promote sales of U. S. soybeans and soybean meal. The Council has also conducted a survey on soybean meal utilization in France through the Federation of Mixed Feed Manufacturers and the French Society for Animal Production. Also, the Council worked with the UFAC, the National Institute of Agricultural Research and the Technical Centers, dealing with animal nutrition and 95 percent of the mixed-feed industries cooperated, and the French mixed-feed industry team was brought to the United States for technical assistance, and the Council participated in several trade fairs.

Soybean meals are supplied to French importers by the large international trading companies. Imports are now being made mainly through the ports of Nantes, Brest, and St. Malo, in Brittany. However, one of the major problems involved in shipping to this area is the fact that ships over 14,000 tons cannot enter these ports with a full cargo.

One of the major problems in marketing soybean meal in Brittany is in getting advanced sales from the United States. Some soybean mixers are requesting advanced sales of from six to eight months.

The major soybean meal importers in Brittany for U. S. soybean meal are:

1. Pierre Four & Cie, 3 Place de La Prefecture, Nantes, France.
2. S. A. Loiret & Haentjens, 2 Place de la Bourse, Nantes, France.
3. Jacques Williamson, 19 Rue Mathelin-Rodier, Nantes, France.
4. Georges Chauveau, Ingrandes-Sur-Loires.

Soybean meal imported in bulk is often bagged at port and shipped in trucks to feed mills. The bulk movement of soybean meal, as well as mixed feed, formerly retarded by lack of receiving storage facilities, is just starting to develop. However, not over 30 percent shipped to any of the mills was moved in this manner.

Soybean meal imports from United States are being purchased under United States standards, as are soybeans. Soybeans are, however, bought under Federal Standards while soybean meals are purchased under the trading rules of the National Soybean Processors Association. Soybeans are bought c.i.f. Antwerp basis, or north French ports, usually U. S. No. 2 yellow beans with a federal certificate.

Marketing of soybean meal, other than that purchased by large mixers, is done on a small scale and buyers deal in small lots of 200 to 300 tons. Around 400 tons of U. S. soybean meal is sold each day in the Brittany area in small lots in competition with meal from other Western European countries. The total use of soybean meal is expected to reach 25,000 tons a month by the end of 1962, and if lower transportation costs from the U. S. can be maintained they will be an important factor in maintaining and establishing this market.

For poultry growing, Brittany is well suited because of natural factors and quality of the birds produced. Business men in this area report that there are tremendous possibilities for increased poultry-broiler production here.

Development of EEC should provide wider markets for this production. However, it has been reported that the outlook is clouded by some growth adjustments. The broiler industry on the small farms in Brittany has apparently lost money; and it is expected that under EEC, competition with imported poultry from nearby Netherlands and Belgium may result as some parts of Brittany are nearly 300 miles from Paris and bear relatively high transportation costs which may place this area at a disadvantage.

Soybeans and soybean meal received at French mills are often transshipped from Antwerp and Rotterdam by canal barges at a typical recent cost of $5.00 per ton. Soybean meal also is imported direct from the United States at French ports at $2.00 to $2.50 lower price than this total of c.i.f. plus $5.00.

Small oceangoing steamers moving soybeans and soybean meal from U. S. lake ports would have an advantage in shipping direct to French ports.

Barges are the main means of transporting oilseeds to many French crushing mills, and many mills are located on canals where barges from Belgium and the Netherlands can supply them with oilseeds transshipped from the large ports of Antwerp and Rotterdam. The cost of this transshipment has become an important aspect of the competitive situation in the sale of U.S. soybeans and soybean meal direct to northern French ports.

Government Controls and EEC.—The agricultural policy of France is strongly protectionist and has maintained high tariff rates on many agricultural products. While quantitative restrictions have been lifted on several products, numerous other agricultural products, including fats and oils, are still highly controlled. The country maintains liberal import regulations and tariffs on fats and oils from EEC and associated areas. Imports of oilseeds and fats and oils are generally made from these areas. Imports from French areas are largely unrestricted but government monopoly control for oilseeds and oil continues to be maintained. Oilseed meals are imported freely without restrictions as they have been since the end of 1958.

The government maintains fixed prices on oilseeds, livestock, milk and dairy products, meat and various other products. It also had a direct export subsidy program for wheat, flour, sugar, meat, dairy products, and wine. The country's present legislative program is stressing increased agricultural productivity, improved market prices and increased benefits to the family farmer. Present price levels are aimed at shifting agricultural production from wheat and sugar beets to livestock products and feed.

The French oilseeds and oil economy is still controlled by a quasi-governmental monopoly, Societe Interprofessionelle des Oleagineaux Fluides Alimentiraes (S.I.O.F.A.). However, under EEC regulations, this organization will no longer function. This organization establishes prices to producers in France and in the overseas territories and to French crushing mills. S.I.O.F.A. also controls imports from foreign countries. Soybean controls are expected to be relaxed on January 1, 1964 as soybean meal was exempted from controls at the beginning of 1963. Imports from foreign countries are permitted only to the extent necessary to supplement France's own domestic supplies, including those from the associated overseas territories. First preference on imports from these countries is given to oilseeds. In some years, because of reduced supplies of peanuts and peanut oil from French West Africa, larger imports of U. S. soybeans are made. The government has used these to help defray the cost of supporting her own crops. Imports from foreign countries have been subject to so-called equalization fees. This is also a means of preventing world prices from undercutting levels established in Metropolitan France.

Protectionist policies in France has allowed a sizable crushing industry to develop, which operates at less than full capacity. This is one of the reasons for the protectionist policies.

France is striving to adapt its agriculture to meet the advantages of its position in the EEC. Production increases are expected to reduce costs, and the country expects to achieve parity of income for agriculture. French agriculture will be stepped up to meet the expected increase in purchasing power and expected increases in exports of wheat, barley and corn, and livestock products. Agricultural production is expected to be stepped up nearly one-third by 1965. Great emphasis will be placed on livestock production; this should increase the demand for U. S. soybeans and soybean meal which will probably move into the EEC free. Within a few years, the feed mixing industry can be expected to increase production more than half. However, U. S. soybean oil and cottonseed oil used for food will be under a 10 percent tariff rate as crude, and a 15 percent rate as refined. For technical or industrial use, they will bear a rate of 5 percent.

Present tariff rates with present EEC adjustments in France for U. S. soybeans and soybean products are as follows:

	Tariff Ad valorem	
Soybeans and soybean meal	Free (4.2% soybeans, 7.2% meal suspended)	
Soybean oil, crude	To 14.1% from 15.6%	(Final EEC—10%)
Soybean flour (non-defatted)	To 10.8% from 11.4%	
Refined soybean and cottonseed oil	To 16.2%	(Final EEC—15%)

Regulations concerning labeling of mixed feeds and oilseed meals require that the feed contain a trade name of the manufacturer or seller with a number approved by the Fraud Repression Service. Mixed feeds must be labeled as such and must indicate the kind of livestock to which it is to be fed and the month and year of the manufacture.

When the feed contains less than 20 percent minerals, it must contain the nature of the ingredients by four categories: 1.) Cereals and carbohydrates; 2.) Cereal and leguminous middlings; 3.) Oilcakes and other nitrogenous feeds; 4.) and other additives. Also, the feed should be designated as "complete" or "complimentary". In the case of molasses feed, the labeling should be designated as to sugar content. For mixed feeds containing more than 20 percent minerals, they should be labeled as "numerical" with percentages of minerals and vitamins, if added.

The EEC proposals for tariffs on vegetable fats and oils and for free entry of oilseeds and oilcake and meal will tend to develop oilseed crushing in France. However, since there is already ample supply of vegetable oils available from associated areas at lower tariff rates, and from crushing, the structure may act to impede oilseeds of high oil content and favor soybeans and soybean meal imports. With duties on crude and refined oils, U. S. soybean oil will be at a great disadvantage in this market.

Furthermore, as the standard of living rises in the former colonial areas associated with the EEC, domestic use of these oils will increase and exports may decrease or remain the same, if production increases are made. These areas now supply France with large quantities of peanuts and palm oils. Changing economic conditions in supply areas of such associated countries may in some instances, such as palm kernels and palm oil, result in a decline in production, and resulting exports would decline faster than production as domestic consumption is stepped up.

Summary

Soybean meal imports into France can be expected to more than double by 1965 and average around 400,000 tons. At the present time, U. S. bulk soybean meal is preferred by the growing French broiler industry over domestically produced peanut meal, which is often sold direct to the farmer and is in demand by the dairy industry.

A major factor that has tended to increase imports of U. S. soybean meals, is that they are cheaper and of more uniform quality than that received from French crushers and from suppliers in other countries. Since meals are not under government control, U. S. firms with interests in the French feed industry are demanding U. S. quality meal.

The poultry industry in Brittany can use 150,000 to 180,000 tons of soybean meal at present. Price factors (July, 1962), have given an edge favoring the importation of U. S. soybean meal which was selling at 48 NF per 100 kilograms ($96 per metric ton) in Nantes, Brittany, compared with 51.50

NF ($103 per ton) for peanut meal and 49.0 NF ($98 per ton) for linseed meal.

Some U. S. 50-percent soybean meal is now being sold in France, but, since it has not yet been shown profitable, 44-percent meal will continue to be sold here. It has been reported that the chicken strains in Brittany cannot take full advantage of the growth benefits of 50-percent soybean meal received from the U. S.

At the present rate of crushing of soybeans, of around 145,000 tons in 1962 and 80,000 tons in 1961, and with crushing operations at the break-even point, present prospects for increased crushing of soybeans can only be based on government action. It is apparent, however, that an effort is being made by several of the large mills to provide for facilities to crush more soybeans. However, soybeans have been looked upon as an oilseed available to keep plants in operation at the end of the peanut and rape crush, and income from crushing soybeans will pay some costs. Some mills are perfecting soybean oil refining operations to prevent flavor reversion and expect to sell soybean oil by trade mark. If this can be done, and at a competitive price that consumers will accept, the demand for soybeans for crushing in France can be expected to expand rapidly.

Regardless of the fact that there is a desire to crush more soybeans, the ruling fact is that the French crushers will crush soybeans only to the extent that they can find markets for the oil. Beyond this point, soybean meal will be imported. It is expected that this point for crushing will not be over 250,000 tons, and that U. S. suppliers will continue to supply meal to Nantes and North Brittany ports at $2.00 to $2.50 per ton over Rotterdam prices, and U. S. meal will maintain this market because of the cost of $5.00 for transshipment of Dutch meal from Rotterdam to this area.

Economic expansion is expected to continue through 1963 with industrial production expanding at a moderate rate of around 7 percent, as it did during 1962. Growing industrial production in France has maintained full employment and a strong economic position. Some inflationary measures are present, but, domestic consumer demand can be expected to increase. The government's stabilization plan adopted at the end of 1958 has been highly successful. The balance of payments situation, with improved foreign exchange and gold holdings, has helped. As a result, there is a favorable outlook for increased marketings of U.S. soybeans and soybean meal.

EEC developments expected affecting the livestock industry can be expected to expand the country's demand for greater imports of oilseeds and oilseed cakes and meals. An expansion in feed mixing of 50 percent would result in a demand for at least 600,000 tons of oilseeds and 260,000 tons of oilseed cakes and meals. Allowing for an expansion of 50,000—100,000 tons for domestic oilseeds and 200,000 tons of peanuts and palm kernels and other oilseeds from associate territories—France would need at least 500,000 to 600,000 tons of U.S. soybeans and soybean meal equivalent in soybeans by 1965. Over 400,000 tons were consumed in 1962.

The oilseed crushing industry and the government would prefer to import oilseeds for crushing rather than import the end products in order to provide more employment for domestic mills. But, in 1961, oilseed imports were down. Oilseed cake and meal imports were up 50 percent; soybean, cottonseed meal from the U. S. had tripled. As it does not appear that imports of oilseeds can be maintained at the past level, more emphasis is being placed on domestic production of oilseeds.

The demand for oilcakes is increasing, and since soybeans contain a large percentage of oilcake per unit of raw material, the Fourth Modernization Plan calls for the import of 400,000 tons of soybeans by 1965.

In France, the growth of the poultry industry will create the largest demand, indirectly for soybeans and directly for soybean meal in mixed feeds. If broiler production increased by 200 million birds by 1965 (it well could), the demand for feed will be increased by 2 to 3 billion pounds, and around 1.5 million tons of mixed feed or 250,000 to 350,000 tons of soybean meal would be needed. At half this rate, or 100 million birds, 125,000 to 175,000 tons of soybean meal would be needed. This would mean an increase in demand for 160,000 to 300,000 tons of soybeans alone.

If hog numbers continue to increase at the same rate as in the past, the demand for mixed hog feed may increase by 150,000 to 200,000 tons by 1965, thus providing additional demand for 50,000 to 75,000 tons of soybean meal.

Cattle feeds and other livestock feeds should create additional equal demand for soybean meal, making total demand for this high protein meal equal to 400,000 to 500,000 tons by 1965.

Consumption of edible fats and oils in France in 1961 is estimated at around 44 pounds per capita, only slightly lower than that in the United States and leaving only a modest possible expansion in use of vegetable oils. French adjustments to meet the European Common Market may involve downward changes in domestic prices of fats and oils commodities. Any such reduction in price would result in an increase in consumption. However, because supplies of edible fats and oils are more plentiful than those of oilseed cakes and meals, the importation of such low-oil content oilseeds as soybeans probably will increase.

United Kingdom

The United Kingdom, made up of England, Scotland, Wales, and Northern Ireland, with a total population of around 52.9 million people, is an expanding market for U. S. soybeans and a large potential market for soybean meal. Imports of the former have increased rapidly in recent years while those of the latter have been small and fluctuating in the past. In the 1961-62 marketing year imports of soybean meal were somewhat larger. Larger imports of U. S. soybeans and soybean products are possible in the future only if trade obstacles, including Commonwealth preferences, are removed.

The United Kingdom depends almost entirely upon imports of oilseeds and oilseed meal, as well as feed concentrates, for the supply of its livestock and fats and oils industries. Only an insignificant quantity of edible vegetable oils and oilseed meals are produced from domestic supplies and very small amounts of domestically processed meals from U.K.-grown oilseeds are made available for the livestock industry. Historically, almost two-thirds of the caloric value of U.K.'s food supplies are imported.

The United Kingdom, one of the most highly industrialized countries of the world, has a food consumption level of around 3,200 calories per day and an upward trend in per capita meat consumption, now around 132 pounds. However, consumption of poultry meat has more than doubled since 1955 and is increasing rapidly as the large broiler industry, which uses soybean meal, expands.

The growing broiler industry offers the greatest potential market for soybean meal in the United Kingdom. Poultry meat production has been at the following levels:

Mil. lb.	Mil. lb.	Mil. lb.
Average 1951-55 - 204	1957 - 314	1960 - 575
1956 - 279	1958 - 403	1961 - 652
	1959 - 481	1962 - 678

The present per capita consumption of poultry meat shows a steady upward trend.

Lb.	Lb.	Lb.
1956 - 7.3	1958 - 9.4	1960 - 13.4
1957 - 8.1	1959 - 11.6	1961 - 14.0 1/
		1962 - 14.6

1/ Preliminary.

The economy of the United Kingdom is expected to show an upward turn in 1963 and the following year as a result of possible wage increases based upon productivity gains. The economy is expanding at a moderately satisfactory rate but increase in investments will be needed. Nevertheless, deflationary measures are all becoming effective. Production is expected to increase 2.3 percent per year. Consumer spending is expected to expand somewhat and demand for livestock and livestock feeds should continue to grow. In correlation with this trend, the use of high protein concentrates and soybean and soybean meal should continue upward.

Meat production, another factor in creating a large demand for oilseed meals in the United Kingdom likewise has increased:

	Mil. lb.		Mil. lb.		Mil. lb.
Average 1951-55	3,151	1958	3,814	1960	3,788
		1959	3,713	1961	4,144

Consumption of meat is also rising, as indicated in the level of recent years over the 1951-55 average:

	Lb.		Lb.		Lb.
Average 1951-56	108	1956	131	1959	129
1955	128	1957	134	1960	132
		1958	133	1961	134
				1962	138

Present food consumption levels are slightly above prewar averages. Milk and egg consumption are well above prewar averages, and total meat consumption since the ending of rationing in 1954 well exceeds prewar.

Protein consumption in the United Kingdom is fairly high and totals around 85 grams per person per day. Of this, 56 grams are obtained from animal protein and 29 grams from vegetables. Fat consumption averages around 128 grams per day.

Demand for Soybeans and Soybean Cake and Meal

Soybeans and Other Oilseeds.—Great Britain is the world's largest importer of agricultural products. While most of the oilseeds and oilseed meals come from the British Commonwealth countries, a growing volume of soybeans are obtained from the United States. While the United Kingdom has for many years ranked first among foreign buyers of U. S. farm products, and there is a substantial demand there for American oilseeds and oilseed products, the latter have not been among the principal imports.

Nevertheless, the United Kingdom is expected to increase its imports of U. S. oilseeds. Imports of soybeans have increased, from around 25,000 tons and less in 1953 and earlier years, to over 145,000 long tons in 1960. This volume dropped to around 56,000 tons in 1961 but again rose to 141,000 tons in 1962. However, stocks were large, and use in 1961 was in line with previous years. Great Britain's total imports of soybeans in the past 10 years increased from around 55,000 tons in 1952 to around 314,000 long tons in 1960. Another oilseed with greatly increased imports into Great Britain is flaxseed, which is imported mainly from Canada. Volume of peanuts, rapeseed, palm kernels, copra, and castor beans imported has diminished somewhat at the expense of larger imports of soybeans. United Kingdom annually imports over 1 million tons of oilseeds while exports are very nominal. In 1959 and 1960, the United Kingdom annually imported over 1.1 million tons of oilseeds, but in 1961 they were slightly under that level.

The United States is benefiting from the exports of Canadian soybeans to this market, since Canada has also been a growing market for U. S. soybeans. In some years, China also supplies the United Kingdom with large quantities of soybeans.

Table 17.—UNITED KINGDOM: Oilseeds, imports, exports, annual, 1950-1962

Year	Soybeans		Peanuts, unshelled	Peanuts shelled	Cottonseed	Sesame seed	Sunflowerseed	Rapeseed	Copra	Palm kernels	Flaxseed	Castor beans	Other oilseeds and Oil-bearing material	Total
	Total	from U.S.												
Imports:	Long tons	Long tons	Long tons	Long tons	Long tons	Long tons	Long tons	Long tons	Long tons	Long tons	Long tons	Long tons	Long tons	Long tons
1950	3,735	- - -	61,779	318,470	149,764	(1/)	(1/)	(1/)	113,469	454,586	44,787	17,439	21,475	1,185,504
1951	55,635	- - -	59,323	135,109	124,863	10,232	34,876	12,124	178,960	403,799	33,111	21,080	45,975	1,115,087
1952	21,565	- - -	62,199	269,265	144,384	14,492	3,699	13,489	166,898	445,588	24,935	11,570	36,193	1,214,277
1953	38,720	(25,915)	53,352	312,428	167,495	16,895	63	13,416	91,845	443,846	10,165	26,405	16,860	1,191,490
1954	48,829	(27,664)	45,971	363,505	119,168	9,440	187	6,680	106,140	302,556	28,387	21,082	26,517	1,078,462
1955	103,112	(66,036)	26,477	265,852	186,301	4,016	204	3,948	70,265	339,603	45,318	8,969	4,416	1,058,481
1956	64,964	(24,606)	8,152	313,458	121,730	4	356	4,065	83,954	301,862	138,875	3,851	11,156	1,052,427
1957	116,722	(68,384)	6,512	222,713	119,821	8	- - - -	4,464	109,829	326,197	202,982	5,814	4,499	1,119,561
1958	127,908	(18,236)	5,812	206,391	102,569	11	- - - -	4,354	92,134	305,945	120,973	13,866	15,284	995,247
1959	218,535	(98,000)	5,088	227,299	149,492	- - - -	- - - -	4,483	63,753	261,943	153,679	12,336	25,727	1,122,335
1960	313,613	(145,000)	5,055	127,215	137,364	- - - -	- - - -	4,045	74,967	265,877	157,530	9,169	5,583	1,100,418
1961	181,372	(56,000)	4,889	158,601	126,600	- - - -	- - - -	4,624	97,876	224,537	150,869	11,448	8,397	969,213
1962	241,063	(141,000)	4,682	207,587	185,552	- - - -	- - - -	7,170	71,397	208,965	129,593	20,670	23,387	1,100,066
Exports and reexports:														
1950	- - - - -	- - - - -	- - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - - - -
1951	- - - - -	- - - - -	13	2,000	- - - -	- - - -	- - - -	- - - -	18	209	- - - -	- - - -	39	2,279
1952	- - - - -	- - - - -	11	- - - -	- - - -	- - - -	- - - -	- - - -	59	- - - -	- - - -	- - - -	7	77
1953	- - - - -	- - - - -	- - -	- - - -	- - - -	- - - -	- - - -	- - - -	334	41	- - - -	- - - -	111	486
1954	- - - - -	- - - - -	215	2,577	- - - -	3,542	- - - -	- - - -	67	1,571	- - - -	- - - -	107	8,079
1955	- - - - -	- - - - -	(1/)	(1/)	- - - -	(1/)	- - - -	- - - -	1/	1/	- - - -	- - - -	52,223	52,223
1956	- - - - -	- - - - -	- - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	19,153	19,153
1957	- - - - -	- - - - -	- - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	33,399	33,399
1958	- - - - -	- - - - -	- - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	461	461
1959	- - - - -	- - - - -	- - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	637	637
1960	- - - - -	- - - - -	- - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	670	670
1961	- - - - -	- - - - -	- - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	2,309	2,309
1962	- - - - -	- - - - -	- - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	- - - -	2,625	2,625

1/ Included in other.

Table 18.—UNITED KINGDOM: Oilseed cake and meal, imports, exports and reexports, average 1950-54, annual 1950-1962

Item	1950-54 Average	1955	1956	1957	1958	1959	1960	1961	1962
	Long tons								
Imports:									
Cottonseed	141,604	326,512	263,671	196,714	299,986	319,618	248,122	224,875	208,217
Soybean (Total) . .	8,434	156,501	227,617	214,058	78,231	190,938	216,502	139,531	206,451
Soybean (from U.S.)	3,417	10,332	3,535	--	--	--	--	--	(4,133)
Peanut	69,794	218,912	208,953	233,248	461,580	511,021	544,240	595,820	635,312
Linseed	108,306	71,215	36,983	20,503	65,707	46,287	49,430	27,223	32,378
Rapeseed	8,178	8,878	2,050	6,785	41,301	--	--	--	--
Sunflowerseed . . .	119,698	40,863	57,706	133,443	114,146	96,954	98,442	101,253	108,179
Other	34,326	66,949	23,029	29,729	14,847	63,750	63,066	73,346	78,173
Total	493,757	900,162	823,544	834,480	1,075,798	1,228,568	1,219,802	1,162,048	1,268,710
Herring Meal. . . .	--	55,250	73,903	58,396	42,027	--	--	--	
Whale Meal.	--	30,330	38,174	32,945	32,730	52,658	24,738	20,369	
Other	--	34,415	33,585	50,928	71,394	147,020	168,449	230,023	
Exports and Reexports:									
Cottonseed	--	--	--	--	--	--	--	--	--
Soybean	7	--	--	--	--	--	--	--	--
Peanut	--	--	--	--	--	--	--	--	--
Linseed	427	--	--	--	--	--	--	--	--
Other	16,768	10,360	13,037	10,092	12,398	NA	NA	NA	48,911
Total	17,202	10,360	13,037	10,092	12,398	NA	NA	NA	48,911
Fishmeal	7,199	13,501	10,730	8,563	11,631				

Table 19.—UNITED KINGDOM: Oilseed Cake and Meal, Total supplies, annual Average 1950-54, 1960-1962

Item	Cake and meal Imports	Domestic production	Exports & reexports	Total supply	Cake and meal Imports	Domestic production	Exports & reexports	Total supply
	1950-54 Average				1960			
	Long tons	Long tons	Long tons	Long tons	Long tons	Long tons	Long tons	Long tons
Peanut	69,794	184,134	--	253,928	544,240	73,697	--	617,937
Soybean	8,434	26,317	7	34,744	216,502	244,932	--	461,434
Cottonseed	141,604	59,276	--	200,880	248,122	57,693	--	305,815
Linseed	108,306	18,489	427	126,368	49,430	103,025	--	152,455
Palm kernel	--	213,239	--	213,239	--	138,256	--	138,256
Copra	--	46,012	--	46,012	--	26,238	--	26,238
Rapeseed	8,178	6,285	--	14,463	--	2,225	--	2,225
Sunflowerseed	119,698	--	103	119,595	98,442	--	--	98,442
Other	34,326	23,239	16,665	40,900	63,066	2,545	--	65,611
Total	490,340	576,991	17,202	1,050,129	1,219,802	648,611	--	1,868,413
	1961				1962			
Peanut	595,820	91,193	--	687,013	118,098	635,272	--	753,370
Soybean	139,531	141,652	--	281,183	190,335	206,475	--	396,810
Cottonseed	224,875	53,172	--	278,047	77,945	208,148	--	286,093
Linseed	27,223	98,668	--	125,891	82,866	32,379	--	115,245
Palm kernel	--	116,759	--	116,759	--	--	--	--
Copra	--	34,257	--	34,257	--	--	--	--
Rapeseed	--	2,543	--	2,543	--	--	--	--
Sunflowerseed	101,253	--	--	101,253	--	108,158	--	108,158
Other	73,346	34,288	--	107,634	151,953	78,240	--	230,193
Total	1,162,048	572,532	--	1,734,580	621,197	1,268,672	--	1,889,869

The United Kingdom obtains large quantities of peanuts for crushing from Nigeria—the largest supplier by far—Gambia, the Union of South Africa, Rhodesia and Tanganyika.

Copra is received mainly from the Pacific Islands and New Guinea. Palm kernels are obtained mainly from Nigeria and also from Sierra Leone. Canada supplies the U. K. with flaxseed and some shipments are also received from the United States and the Argentine. Cottonseed is obtained from the Sudan, Nigeria and East Africa.

Soybean Cake and Meal.—United Kingdom also imports over 1.2 million tons of oilseed cakes and meal each year, and 1959 and 1960 imports exceeded this figure. However, imports in 1961 fell slightly below this level. As with oilseeds, imports come mainly from Commonwealth countries. The imports of oilseed meals of U. S. origin have been nominal. Only 200 tons of U. S. soybean meal were imported into Great Britain in 1960-61. In the 1960-61 marketing year, United States exported only 14,300 tons of cake and meal, mainly cottonseed, to the United Kingdom. However, this was one-third less than in the previous year. Most of this was cottonseed meal, and only nominal amounts of soybean meal were imported.

Peanut meal constitutes about 40 percent of the oilcake and meal imported into the United Kingdom. Equal amounts of cottonseed and soybean meal, approximately 200,000 tons each year, are imported. Other imported meals are sunflowerseed, linseed, and other miscellaneous oilseed cakes and meal. The United Kingdom reexports only about 20,000 tons of oilseed cakes and meal each year.

Canada supplies the United Kingdom with large shipments of soybean meal. Imports of cottonseed cake and meal come from the Sudan, Uganda, Argentina, Pakistan, Syria, Peru, and Tanganyika. Peanut cake and meal comes from India, Nigeria, Senegal, Burma and Argentina.

Linseed meal is obtained from Argentina and India, rapeseed cake and meal from Italy and France, and sunflowerseed cake and meal from Argentina.

Total supply of oilseed cakes and meal from imports, and crushing from imported oilseeds in Great Britain, aggregate well over 1.6 million tons each year. With the demand high for oilseed cakes and meal to balance protein in rations, continued imports of soybeans for domestic crushing can be expected.

Fish and whale meal imports into the United Kingdom have become sizable in recent years, with 1961 imports totaling 250,000 tons, or 4 times the volume obtained in 1955. Considerable competition exists between fishmeal and oilseed cakes and meals.

Total oilseed cake and meal supplies in the United Kingdom were estimated at around 1.9 million long tons in 1960 and 1.7 million in 1961 compared with only about 1.1 million in the 1950-54 period, an increase of around 70 percent.

Total supplies of soybean meal consumed by the livestock industry totaled 461,000 tons in 1960 but reached only 281,000 tons in 1961. Nevertheless, use of this meal remained well over the 1950-54 average of around 35,000 tons.

Compound or mixed feed production in the United Kingdom totaled over 7 million long tons annually since 1958. Distribution (1954-1958 average) is about 33.5 percent cattle feed, 3.3 percent calf feed, 25.5 percent pig feed, 36 percent poultry feed, 0.5 percent horse and sheep, 1.2 percent other.

Soybean Crushing Industry

The oilseed crushing industry in the United Kingdom crushes around 1.1 million tons of oilseeds each year, and it is entirely dependent upon imported raw materials. (However, in 1961 only around 950,000 tons were crushed.)

The industry is concentrated in the hands of 11 large processing mills, most of which are located along the coastal areas where imported oilseeds are easily handled. The majority of existing mills are now concentrated around Hull, Liverpool and London. Continuous solvent extraction mills have been constructed in the United Kingdom since the war, although some batch-type solvent extraction plants are still in operation. However, most of the continuous-extraction plants have pre-pressing or expelling equipment used for high oil content seeds and materials. Modern toasting facilities for improving the meal have not been installed in Britain.

Crushing mills are located mainly at Bristol, Glasgow, Hull 3, Liverpool 3, London 1, and Manchester 1. The industry, with total crushing capacity of 1.4 million tons, is now operating at about 80 to 90 percent of capacity, at 950,000 to 1.1 million tons per year.

Soybeans are crushed in the United Kingdom at 6 plants with a capacity varying from around 150 tons a day to that of one large plant with capacity varying from 500 to 700 tons.

The following solvent extraction mills are now crushing soybeans regularly in the United Kingdom:

Name of Solvent Extraction Mills	Location	Capacity in tons per 24 hours		
Clyde Oil Extraction Ltd.	Glasgow	180 to 200		
J. Bibby & Sons, Ltd.	Liverpool	500 to 700		
British Extraction Co.	Bromborough (Liverpool)	200		
Premier Oil and Cake Mills Ltd.	Hull	150		
British Oil & Cake Mills (batch solvent)	Eirth	200		
Total 24 hour capacity		1,230	—	1,450
Total yearly solvent crushing capacity		400,000		450,000
Other mills crushing soybeans				
African Oil Mills (Cooperative Wholesale Society)		Capacity unknown		
British Oil & Cake Mills, Selby		Capacity unknown		

Total estimated crushing capacity in the United Kingdom: Solvent extraction 400,000 to 500,000, Expeller capacity 900,000

Total 1,300,000 to 1,400,000

Table 20.—UNITED KINGDOM: Livestock by number, by kind, average 1951-55, annual 1956-1963

Kind	Average 1951-55	1956	1957	1958	1959	1960	1961	1962 1/	1963 1/
	Thousands	Thousands	Thousands	Thousands	Thousands	Thousands	Thousands	Thousands	Thousands
Cattle.									
Dairy	2,621	2,779	2,851	2,890	2,858	3,451	3,577	3,690	--
Beef and Other.	7,511	7,976	7,860	7,929	8,147	8,028	8,125	7,941	--
Total	10,132	10,755	10,711	10,819	11,005	11,479	11,702	11,631	11,630
Hogs	5,304	5,974	6,065	6,576	6,699	6,008	6,122	6,716	7,250
Sheep.	16,428	23,600	17,442	18,701	20,370	19,391	20,031	20,223	21,026
Poultry.	59,815	63,943	68,958	69,930	77,607	87,931	89,000 1/	96,100 2/	
Broilers and other 3/	68,033	93,033	104,833	134,333	160,400	191,667	217,333	250,000	

1/ Preliminary, based upon December 1 Census of previous year.

2/ Made up of 19 million broilers, 77 million other, mainly chickens.

3/ Estimate, based on poultry and meat production.

British agriculture is highly developed and is mainly a combination of livestock and crop farming, with emphasis on dairying in many sections. British farms are fairly large compared with other European farms, and more adaptable to support of a highly concentrated livestock industry. Well over half are operated by tenants, and farmer operators employ mostly hired labor to tend the animals, particularly in the dairy industry. As in the United States, dairy industry and farming are highly mechanized.

Meat and livestock products account for approximately 69 percent of British farm sales, meat animals 31 percent, milk and dairy products 24 percent, and poultry and eggs about 14 percent. Milk, the primary product of dairying, is marketed principally for fluid consumption.

The heavy concentration on livestock and livestock products in the United Kingdom has resulted in increased need for high protein oilseed meals. A substantial upward trend in consumption and imports of oilseed products has taken place (nearly 3 times from 1950 to 1960) as livestock numbers have increased.

The country now has nearly 12 million head of cattle compared with only around 10 million in the 1951-55 period, with dairy cattle totaling around 16 percent higher, at 3 million, in 1962. Hogs have also increased rapidly; the country now has well over 6.5 million, up over one-quarter, from 1951-55. The sheep industry has expanded about 20 percent during this period, from around 16.4 million head in 1951-55 to over 20 million in 1962.

While other livestock numbers have increased moderately, the poultry industry has shown a gain of over 60 percent during the 10-year period 1951-1961. Poultry numbers averaging around 59.8 million in 1951-55 increased to over 96.1 million in 1961. With the development of the poultry industry, there has been a substantial increase in the use of soybean cake and meal.

The feed-mixing industry in the United Kingdom has grown significantly in recent years. The 1958 census indicated that sales had increased 40 percent between 1954 and 1958. In the latter year sales of livestock feed were valued at over 300 million pounds sterling or $850,000,000. The industry was concentrated mainly in 166 enterprises that employed 25 or more persons, with sales over four-fifths of the total. Total number of establishments is now around 1,200. Plant equipment, mainly plant and machinery, nearly doubled that of 1954, indicating continued expansion in this industry. Cattle feed represented in 1958 approximately one-fourth of total mixed feeds, and calf feed represented about 4 percent. Pig feed made up nearly 20 percent of the total, poultry feed, around 35 percent.

Production of mixed feeds and compounds has expanded rapidly from less than 6 million tons in 1953 to nearly 9 million in 1961, or an increase of over 50 percent. In recent years the rate of increase has slowed down, and 1960 production was 8.6 million tons. Nevertheless, present production indicates that production is rising again, and expected increase for 1962 is around 10 percent with output expected to reach around 10 million tons. At this rate, production may reach 12 to 13 million tons by 1965.

Production is centered largely in poultry feed as in previous years, and present levels are around 45 percent poultry feed, 20 percent hog feed and cattle and other feed, 20 percent. As could be expected, the advance in total feed production has brought an increase in the demand for soybean meal, and some feed-mixers are now using as much as 7 times more soybean meal as

in 1957. However, U. K. feed-mixers state that they are not establishing preference for any meal, since supplies are obtained world-wide and price factors are dominant. Nevertheless, there are some feed-mixers that have indicated that soybean meal for hog and poultry rations, particularly for broilers, is becoming an essential ingredient.

Many new feed-mixing or compound mills are being built, and in 1962 several new mills came into production.

Soybean meal use has established itself in the rations produced by the feed-mixers, and it appears that the following percentages are being used by many large mills at present:

	Approximate
Broiler feeds	10 - 20 - 30 percent soybean meal
Layer feeds	7 - 10 - 14 percent soybean meal
Hog feeds	5 - 10 - 13 percent soybean meal
Cattle feeds	some mills are using very little soybean meal
Calf feeds	15 percent soybean meal

An average of around 3 percent soybean meal was used in all mixed feeds in 1961 but this percentage is expected to reach 5 to 10 percent by 1965.

The industry was highly concentrated in a few large industries. The 4 main corporations in the industries had 14 establishments and accounted for approximately 38 percent of the total sales of the main producers. Five other smaller corporations with 26 establishments had nearly 10 percent of the sales.

Feeding practices and use of soybean meal.—The United Kingdom has an abundance of grasslands and pasture for feeding livestock. Dairy cattle are fed mainly on grass during the period from April to October and on stall rations consisting of hay, kale, silage, mangolds, and concentrated feeds during the remaining months. In some areas, beet pulp and brewer's grain are an important source of nutrient. Farmers are now supplementing the grazing of dairy cattle with concentrated feeding. In the early part of the grazing season, supplemental feeding is necessary and brings exceptional advantages.

The outstanding development over the past 10 years giving promise for increased markets for soybeans and soybean meal has been the establishment of the broiler industry and a large and expanding scale, with considerable expansion of turkey production, as well. Also, the layer industry has turned from small flocks to large scientifically-housed flocks. The broiler industry has now become a highly organized business, as it is in the United States, with a great increase in manufacture of specialized poultry feeds. Manufactured and mixed feeds have been developed along the lines of U. S. standards, and the feeding of nutritionally-balanced mixed poultry feeds has become a general practice.

In recent years there has been a strong upward demand for mixed feeds in the United Kingdom. (Approximately 70 percent of total tonnage of purchased feeds is obtained in this form.) In the prewar period, mixed feeds represented only about 45 percent of total feedstuffs passing through normal trade channels. However, many large farmers make their own mixed feeds from home-produced feeds and purchased concentrates. Some of the larger farms have fully-mechanized feed mixing, including feeding and pelleting.

In the United Kingdom, development of feed storing practices has progressed significantly in recent years. Production of farm silage is now

Table 21.—UNITED KINGDOM: Edible Fats and Oils, per capita consumption by kind, 1956-1962 1/

Commodity	Average 1934-38 Prewar	1956	1957	1958	1959	1960	1961	1962 2/
	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds	Pounds
Butter	20.3	12.5	14.0	16.2	15.2	15.1	16.2	16.2
Margarine.	7.0	13.5	12.1	10.7	11.6	12.0	10.6	10.5
Lard and compound cooking fat	----	10.8	10.4	10.8	11.3	11.7	11.7	12.0
Other edible fats and oils	----	10.4	11.2	9.8	10.1	9.6	9.5	9.5
Total	n.a.	47.2	47.7	47.5	48.2	48.4	48.0	48.2

1/ Fat content.

2/ Preliminary.

an important source of livestock feed, and most farmers feeding dairy and beef livestock have some form of silage storage.

Consumer Uses and Demand for Soybean Oil.—The major use of soybean oil in the United Kingdom is in margarine, but since fish and whale oils are also used extensively in margarine in this country, the low prices for the latter oils at present (around 4 cents and 6 cents per pound respectively) will keep soybean oil uses at a minimum. Some margarine manufacturers use up to 20 percent soybean oil in their margarine, but as low as 10 percent.

Per capita consumption of butter (fat content) has jumped from 12.5 in 1956 to 16.2 pounds in 1962. There has been an inverse relation to the consumption of margarine (fat content) which has fallen from 13.5 pounds per capita in 1956 to 10.5 pounds in 1962. Other fats and oils (edible uses), including whale and fish oil as well as vegetable oils and lard, have remained at around 21 pounds per capita.

Total consumption of fats and oils in the United Kingdom has increased in the past 6 years by only 0.8 pounds, from around 47.2 to 48.0 to 48.2 pounds per capita. This has been represented mainly by the larger butter consumption. As a result, the demand for soybean oil and vegetable oils has continued to level off and increase directly with population change.

The use of soybean oil is not a major deterrent to the volume of soybeans crushed at the present time, because the country is a large net importer of vegetable oils. However, the percentage use of soybean, cottonseed, and palm oils in margarine and shortening is based upon price, to a marked extent.

Marketing and Government Controls

Marketing Soybeans and Soybean Products.—Since the vegetable oil industry in the United Kingdom is almost wholly dependent on imports of oilseeds and raw materials for crushing, the British trade has developed a specialized set of rules governing the imports of oilseeds and other materials. A large percentage of the oilseeds imported are obtained under the rules of the Incorporated Oil Seed Association that has provided basic contract forms to all the members. Each type of oilseed is purchased under a specified contract form that relates mainly to the origin of the oilseed. As a result of this specialization, many oilseeds purchased throughout the world are obtained on a fair-average quality basis. Soybeans specifically are obtained under Contract #79, amended March 24, 1959. In general, this contract provides for purchase of American soybeans basic cost, freight rate, and insurance at European ports. Weights are specified in terms of long tons. The contract specifies the point of origin of the soybeans and the total shipment involved.

Often oilseeds are also purchased under the provisions of the Seed Oil Cake Products and General Association Incorporated called the Liverpool Contract. Soybeans, oil and meal cakes are often obtained under this contract.

Distribution of imported feedstuffs is chiefly through brokers, or importing merchants, selling to wholesalers. Grain imports move from agents, brokers, or importing merchants to millers. Importers purchasing soybean meals use the standard forms for c.i.f. and f.o.b. contracts issued by the London Cattle Food Trade Association. All of these contracts provide for arbitration when needed. These contracts fall essentially in line with definitions and standards of the National Soybean Processors in the United States. Imports of all soybean meals from all sources are currently permitted by the authorities under general license.

All animal feedstuffs which include soybean meal imported in the United Kingdom come under the provisions of the Fertilizers and Feeding Stuffs Act of 1926. This act stipulates feeds shall be suitable for the purpose for which they are sold. Definitions also include ingredients that are deleterious, and in certain cases these definitions require that a seller must give a declaration of the content of oil, the albuminoids-nitrogen content or other specified items.

The main trade associations and their addresses are: The London Cattle Food Trade Association, Audrey House, 527 Houndsditch, London East Central 3 and the London Corn Trade Association Limited, 28 Saint Mary's Avenue, London East Central 3.

The main importers and dealers of soybean meal are located in the port cities of London, Liverpool, Hull, Glasgow, and many other small port cities.

One of the important agents that purchase soybean meal and other oilseed cakes and meal, and manufacture them into mixed feeds, is the British Cooperative Wholesale Society, CWS. This Company does an $11 million business in imported food and feedstuffs each year. This Cooperative Society is active in manufacturing mixed feeds and processing fats and oils. It has a large crushing mill and feed mixing mill located at Liverpool, Silverton, London, and Irlam in Manchester. The Cooperative imports feed grains, oilseeds, oilseed cakes, and fats and oils from all over the world including the United States. The British farmers receive mixed feeds for their livestock, including their fast-growing broiler industry.

Recent ocean freight rates to the United Kingdom from U. S. Gulf and East Coast ports have been higher than to other ports on the West Coast of Europe because of the heavy cost and lighter charges of moving ships to docks. Bulk soybean tramp rates for cargoes to the United Kingdom were in a representative year, $7.70 long ton to London from Gulf ports compared with $4.75 - $5.00 to Antwerp and Rotterdam. Current rates are now quoted at around $5.00. From Chicago via the Great Lakes the rate to U. K. is $9.10 - $11.55 ton. U. S. Gulf ports to Liverpool and Manchester were $7.00 - $7.35 and Hull and Avonmouth were also $7.70 per ton in 1962.

Government Controls and the European Economic Community.—The full rate of duty in the British tariff applies to import of U. S. soybeans, soybean cake and meal, and soybean oils, both refined and crude. It also applies to all other countries outside the Commonwealth, except those in the European trade associations. On July 1, 1960, rates to these countries, namely Denmark, Sweden, Switzerland, Finland, Norway, and Portugal, were reduced by about one-fifth, and reduction will continue until 1968 when all import duties will be removed.

The present custom tariffs on U. S. soybean imports into the United Kingdom are based on the ad valorem value, (based on the open market at the time when the soybeans entered the United Kingdom). The present rate on soybeans is 5 percent ad valorem. The Commonwealth preference rate is free for all oilseeds.

The custom tariff on oilseed meals, defined as oilcake and other residues resulting from the extracting of vegetable oils, is particularly high. Soybean cake and soybean meal must pay ad valorem at the full rate of 15 percent. Commonwealth preference here again is free, which favors Canadian soybean meal over U. S. meal. The custom tariff on U. S. cottonseed cake and meal ad valorem value is 10 percent. There is discrimination against American soybean cake and meal amounting to 5 percent of the ad valorem value. The U. K. custom tariff for U. S. vegetable oils is also discriminatory. The

tariffs on soybean oil along with that on peanut oil, coconut oil, sunflower-seed oil and other oils, either unrefined or refined, are 15 percent on the ad valorem value. Here, again, there is some discrimination in favor of cottonseed oil, from the American standpoint, since American cottonseed oil, unrefined or refined, can be imported into the United Kingdom with an ad valorem 10 percent custom tariff. On all of these oils the Commonwealth preference allows them to be imported free.

Preferential tariff rates apply mainly to products of the British Commonwealth and former British Commonwealth nations, shipped or consigned directly to the United Kingdom. When and if the United Kingdom is allowed to join the EEC, reduction of the rate on soybeans and soybean meal can be expected over the long period. But these adjustments may take a long time before our soybeans and their products can enter on an equal basis with other countries. When the Commonwealth preference rate is removed, the United States can develop substantially larger markets in the United Kingdom for soybean meal and soybean oil.

U. S. soybeans and soybean products can now be imported into the United Kingdom without license. But this is of little help in marketing U. S. soybean meal and soybean oil in the United Kingdom, as long as the high tariff rates are still in force.

Summary

Future demand for U. S. soybeans in the United Kingdom can be expected to increase substantially from around 145,000 tons in 1960 and 1962, and 56,000 metric tons in 1961, to around 300,000 tons each year by 1965. Total annual use of soybeans for crushing can be expected to increase to around 400,000 to 500,000 tons by that year, to meet the need for an additional yearly requirement of 400,000 tons of oilseed meals.

Price will be the major factor determining volume of imported soybeans. However, mills that are processing soybeans have adapted their already-existing processing facilities to this oilseed, and many mills are turning more and more to crushing soybeans. At present, there are indications that several of the larger crushers are installing facilities capable of large-scale soybean crushing.

The demand for soybean meal is growing steadily, and many feed mills are starting to require soybean meal as an essential ingredient, although they still recognize that price factors may change the extent of demand, and feed formulas can be revised if necessary.

When Commonwealth preference tariff rates are lowered, United Kingdom will become a large market for U. S. soybean meal. It is not expected that this will occur before 1970.

The major factors indicating that there will be a continuing demand for U. S. soybeans in the United Kingdom are:

(1) The steady increase in poultry numbers.

(2) Expected increase of broiler meat production, over 10 percent each year for the next 8 to 10 years, as compared to 20 percent per year in the past 6 years.

(3) The expansion of livestock numbers, particularly hogs and cattle, though this will be at a much lower rate, or around 1 percent per year.

(4) Increase in the use of vegetable oils which will be only moderate, as butter production and consumption will no doubt continue to increase at the expense of margarine.

Expansion of pork production in the United Kingdom can be expected to increase along with the production of hogs; this will offset some imports of meats.

Other indirect factors influencing the demand for U. S. soybeans in the United Kingdom are: (1) The expansion in egg and milk production; (2) the leveling off of the demand for vegetable oils; (3) the slow steady increase in the population to a level of around 55 million in 1970, at a rate of around 0.7 percent per year; and (4) continued industrial expansion and income to maintain high-level consumption of livestock and meat products.

Trends in the leveling off in consumption of vegetable oils and a larger increase in the consumption of oilseed meals in the United Kingdom has been continually favorable for larger imports of soybeans. Soybeans will have low oil yield but will fit well into such a situation. Soybean crushing has increased more than 4 times in the past 10 years and, with the leveling off of vegetable oil consumption, double present levels of soybean crushings can be expected by 1965.

Poultry meat consumption in the United Kingdom appears to be the most important indirect factor presently related to consumption and demand for soybean meal. Imports of canned poultry, which are also increasing, however, must be considered when this factor is considered in relation to poultry meat consumption. The increase in per capita consumption of poultry meat in the United Kingdom, with increased exports of substantially higher levels than at the present time, could expand to 2 1/2 times the present level of around 14.6 pounds if the consumption rate is to equal the same level that has been achieved in the United States and Canada, approximately 30 to 36 pounds per capita.

Denmark

Denmark, although a small country with a stable population of around 4.7 million, is a growing market for U. S. soybeans and soybean meal. A total of about 374,200 tons and 301,900 metric tons of soybeans were imported in 1962 and 1961, of which 318,900 and 213,700 tons respectively, came from the United States. Also, soybean meal imports in 1962 totaled 161,800 tons, of which over 60 percent came from the United States.

Denmark is one of the most concentrated farming areas of Western Europe, specializing mainly in livestock and livestock products. Large exports of these products are made each year. Nevertheless, per capita consumption of meat in Denmark in 1960, at 132 pounds, is highest of any country's in Western Europe excluding the United Kingdom, where meat consumption is at about the same level. Compared with the United States, with a consumption of around 162 pounds, and New Zealand and Australia with around 226 and 229 pounds respectively, a further considerable increase in meat consumption could take place in Denmark.

Milk production in Denmark was around 11,900 million pounds in 1960 and production per cow averaged very high at 8,300 pounds. With the farm economy of Denmark geared to production of livestock products, income from these make up two-thirds of national farm income. Agriculture accounts for 11 percent (net) of Gross National Product. Exports of agricultural products are made to the United Kingdom and other Western Europe and Eastern European areas. For production of livestock products the country produces large quantities of feeds-grains for concentrates, and oat crops, but is nevertheless to a large extent dependent upon imports. Soybean meal is an important ingredient used for mixed feeds, and all of it is imported either as soybeans or as cake and meal.

Feedstuff prices are generally high in Denmark because of the large volume of imports, but in order to make up for lack of protein imported oilseeds are crushed domestically in large quantities and make up around 30 percent of total oilseed meal and cake supplies.

The diet of the Danish people is very high nutritionally, over 3,200 calories a day, and future trends in the consumption of food will be toward specialty proteins in the form of poultry meat and pork. The broiler industry already is growing faster than consumption, as large quantities are exported. But economic factors have tended to depress the market. Pork prices are especially low in Denmark at present, and it will be a considerable period before the poultry industry can compete with pork on a domestic price basis.

Regardless of depressed pork prices, Denmark has tripled poultry meat production in the last five years, and poultry meat consumption and exports appear to be one of the most important factors at present related to increased imports and demand for soybeans and soybean meal in Denmark. The increase in per capita consumption and exports of poultry meat in Denmark is supplied entirely by domestic production. Consumption could expand to more than 3 times the present rate of 11 pounds per capita, if the rate is to be near present levels in Canada and United States.

The present per capita upward trend in poultry meat consumption in Denmark is shown as follows:

Lb.	Lb.	Lb.
1956 - 6.9	1958 - 7.8	1960 - 10.3
1957 - 6.6	1959 - 9.6	1961 - 11.01/

1/ Preliminary.

The expanding broiler industry offers a large potential market for soybean meal in Denmark. Poultry meat production has been at these levels in the past ten years:

Mil. lb.	Mil. lb.	Mil. lb.
Average 1951-55 - 52.5	1957 - 50.8	1960 - 124.9
1956 50.6	1958 - 77.1	1961 - 176.3
	1959 - 99.2	1962 - 193.1

Meat production is another factor creating a large demand for oilseed meals in Denmark which also increased with per capita consumption and exports:

Mil. lb.	Mil. lb.	Mil. lb.
Average 1951-55 - 1,247	1958 - 1,520	1960 - 1,675
	1959 - 1,643	1961 - 1,711

Per capita consumption of meat also rose, as indicated in the level of recent years compared with the 1951-55 average:

Lb.	Lb.	Lb.
Average 1951-55 - 109	1957 - 128	1959 - 131
1956 127	1958 - 128	1960 - 129
		1961 - 129
		1962 - 133

Production of milk and eggs are now well above prewar, and increases have no doubt resulted in a slight gain in the demand for oilseed meals. Milk production levels have been as follows:

Mil. lb.	Mil. lb.	Mil. lb.
Average 1951-55 - 11,521	1958 - 11,292	1960 - 11,903
1957 - 11,781	1959 - 11,962	1961 - 12,178
		1962 - 12,000

Egg production was as follows:

Mil.	Mil.	Mil.
Average 1951-55 - 2,162	1957 - 2,324	1959 - 2,887
1956 - 2,314	1958 - 2,826	1960 - 2,488
		1961 - 2,279

Table 22.—DENMARK: Oilseeds, supply and distribution, 1956-1962

	1956	1957	1958	1959	1960	1961	1962
	Thousand metric tons						
Supply							
Opening Stocks, Jan. 1	11.7	18.7	24.9	29.9	32.1	27.3	41.8
Production							
Flaxseed	1.3	1.5	1.1	1.1	1.3	1.7	.7
Mustard seed	4.8	4.0	4.0	8.0	13.5	16.5	15.5
Rapeseed	1.7	1.1	8.9	11.4	12.8	27.0	53.3
Poppyseed	.2	.1	.2	.5	.4	.3	.0
Total	8.0	6.7	14.8	21.0	28.0	45.5	69.5
Imports							
Soybeans (total)	138.8	151.1	181.6	288.0	365.8	301.9	374.2
Soybeans (from U.S.)	(106.4)	(147.1)	(136.0)	(169.4)	(239.1)	(213.7)	(318.9)
Sesame seed	4.9	5.0	2.9	2.3	2.1	.8	2.0
Flaxseed	5.4	7.3	2.6	4.7	5.5	4.1	3.4
Copra	53.6	66.5	33.1	36.4	43.5	42.4	36.2
Palm kernel	26.6	13.2	26.0	22.3	16.6	11.6	15.6
Other	7.5	6.9	9.4	10.8	7.9	7.4	17.1
Total	236.8	250.0	255.6	364.5	441.4	368.2	448.5
Total supply	256.5	275.4	295.3	415.4	501.5	441.0	559.8
Distribution							
Crushing							
Soybeans	138.8	151.1	181.6	288.0	365.8	301.9	374.2
Sesame seed	4.9	5.0	2.9	2.3	2.1	.8	2.0
Flaxseed	4.7	7.0	----	----	----	----	----
Rapeseed	1.8	1.6	8.6	3.2	.5	.5	4.0
Copra	53.6	66.5	33.1	36.4	43.5	42.3	36.2
Palm kernel	26.6	13.2	26.0	22.3	16.6	13.6	15.6
Peanuts	2.0	1.5	1.6	2.5	2.3	2.7	3.7
Other 1/	(-3.3)	(-2.1)	3.0	6.1	13.4	(-14.9)	1.5
Total	229.1	243.8	256.8	360.8	444.2	346.9	437.2
Food (mustard)	.6	.6	.8	1.3	1.3	1.3	1.5
Feed	1.6	.3	2.2	5.7	6.3	5.4	3.9
Seed and waste	.2	.2	.2	.3	.4	.5	.4
Exports 2/	6.3	5.6	5.4	15.2	22.0	45.1	34.7
Ending stocks, Dec. 31	18.7	24.9	29.9	32.1	27.3	41.8	82.1
Total distribution	256.5	275.4	295.3	415.4	501.5	441.0	559.8

1/ Crushing overestimate 1956-1957-1961.

2/ Primarily mustard seed.

Compiled from official sources.

Milk accounts for one-third, hogs for nearly that much, eggs and poultry for well over a tenth of the value of farm output in Denmark, where most of the other crops are grown for feeding livestock. Agriculture is highly scientific, and the production of meat, milk, and poultry and eggs from the standpoint of nutritional information and scientific know-how is on the same level as that found in the United States. From the standpoint of quality feeding, economics of imports is the important factor. The scientific formulation of livestock rations in Denmark by linear programming is done much like it is in the United States, and the approach appears to be far ahead of that of other European countries.

Together, pork and dairy products contribute the greatest income to agriculture's account. The famous Landrace hogs, which cannot be legally exported, are bred to the strictest conformity and produce the finest pork products for export to all parts of the world. The bacon is kept very lean through a controlled feeding program.

Demand for Soybeans and Soybean Cake and Meal

Oilseeds.--The agriculture in Denmark is almost exclusively mixed farming and the major emphasis is on livestock. The country is extremely deficient in production of the oilseed proteins. The country has both large and small family farms which use extensive applications of fertilizer and manure to increase fertility of the soil which is used primarily in producing livestock feedstuffs. However, while very little of this area has been used in production of oilseeds in past, the area now used is more than twice that of 1955 (11,400 hectares in 1955 compared with 25,260 hectares in 1961).

To meet the requirements for its extensive livestock industry, Denmark has imported large quantities of oilseeds and oilseed meals during the past several years. Over 368,000 tons of oilseeds, including nearly 302,000 tons of soybeans, were imported in 1960, and in 1962, a record 448,500 tons of oilseeds, including 374,208 tons of soybeans, were imported. Also, the country imports over 700,000 tons of oilseed meals each year. Exports are around 90,000 to 100,000 tons of oilseed meals, mainly those obtained from crushing imported soybeans and palm kernels. Imports of soybean meal have annually averaged well over 145,000 tons in the past two years, or 20 percent. However, in competition with soybeans and soybean meal from the United States and Western Germany, Denmark imports significantly large amounts of cottonseed, peanut, copra and sunflower meal. Over 40 percent of imports have been made up of Russian, Sudanese, Turkish, and U. S. (53,800 tons 1960) cottonseed meal in recent years, and approximately 15 percent has been made up of Russian and Argentine sunflower meal. Denmark obtains these supplies from some 50 to 60 countries all over the world. Exports are made mainly to European areas.

Denmark is now using approximately twice as much soybean meal as it did 10 years ago, and consumption appears to be increasing significantly. Production of soybean meal from imported soybeans will average around 240,000 tons each year, making soybean meal availability greater than that of cottonseed meal.

Danish imports of fats, oils and oilseeds from the United States during the past 2 years have been well over $10 million each year. In 1959-60 Denmark imported over $14 million worth of these products from the United States.

Unloading U.S. soybeans from a large oceangoing vessel at a crushing plant. Both of Denmark's large oilseed crushing mills have pneumatic unloading systems. The powerful movable elevator alongside the ship can lift 250 metric tons per hour.

Crushing of oilseeds has expanded from around 229,000 metric tons in 1956 to nearly 444,000 tons in 1960, falling to 347,000 tons in 1961. This is an increase of over 50 percent for 1961. Soybeans make up 80 percent of the oilseeds being crushed.

Oilseed Meals—Oilseed meals produced from oilseeds, both domestic and imported, totaled 313,000 tons in 1961, nearly double the 1957 level. Imports of oilseed meals totaled 716,000 tons, compared with 514,000 tons in 1957. Total supplies were 1.1 million tons in 1961, compared with 940,000 tons in 1956 and 783,000 tons in 1957, an increase of from 20 to 45 percent over the previous levels. Consumption levels have increased correspondingly, and total consumption rose from 790,000 in 1956 and 640,000 tons in 1957, to 899,000 tons in 1961, or 15 to 40 percent.

Fishmeal supplies are increasing, and consumption of oilseed meals does not appear to be increasing percentage wise as fast as fishmeal. Fishmeal consumption has doubled in the same period, but since fishmeal consumption is at a level of only 5 percent of total oilseed meal consumption, it is only a minor factor at present.

Output of domestic oilseeds is estimated at around 40,000 metric tons, which produces approximately 20,000 tons of oilseed meals. Of this meal, large amounts are used for domestic fertilizer.

Denmark's exports of oilseed cakes and meals are less than 15 percent as large as her imports. Of the exports, a comparatively large percentage is soybean oil cake and meal, and is shipped mainly to Sweden; also, considerable palm kernel and coconut cake and meal are exported, primarily to West Germany and Sweden. A sizable amount of fishmeal is exported to the United Kingdom and to the Netherlands.

Sweden is by far the most important market for Danish exports of soybean meal at present; however, some exports also move to West Germany and Poland. In former years, larger exports were made to France.

These growing markets will enable Denmark to import more soybeans for crushing.

Soybean Crushing Industry

The oilseed crushing industry in Denmark is based on domestic demand for fats and a growing export market for processed oil. As a result, the industry is relatively small. Two large crushing concerns make up the vegetable oil industry. Those mills are: Aarhus Olie Fabrik A/S, 27 Brunsgade, Aarhus and Dansk Sojakage Fabrik A/S, 24 Islands Boygge, Copenhagen; they crush imported oilseeds, refine vegetable oils produced, and also refine fish and whale oil. The oil is used mainly for margarine, and also is sold to soap producers. Some soybean oil is exported.

Denmark's Soybean Crushing Capacity, 1962, by solvent extraction, follows:

Company	Continuous solvent extraction crushing capacity, 24 hours Metric tons	Other solvent Metric tons
Dansk Sojakagefabrik, Copenhagen	750	
Aarhus Oliefabrik A/S Aarhus	750	350 batch solvent*
Total solvent extraction capacity per day	1,500	350*
Total yearly crushing capacity, continuous solvent extraction	450,000 metric tons	

All meal produced is toasted.

*This batch solvent crushing capacity is not being operated because of high operations cost, but it could process 100,000 tons of oilseeds a year if necessary.

The two large crushing mills in Denmark are equipped with refining and hardening plants, and all have modern materials-handling and storage facilities for moving large volumes of soybeans and other oilseeds. Soybean oil mills in Denmark are restricted from operating on Sundays, but are allowed to do so during nine Sundays every 6 months.

Crushing costs were reported to be competitive with other mills in Western Europe. Labor costs have risen 10 percent each year during the past few years but still remain low compared with mill costs in the United States, as the average worker in the industry is reported to make around $2,000 a year.

Table 23.—DENMARK: Oilcakes, meals and fishmeal, supply and distribution, 1956-1962

Item	Oilcakes and meals							Fishmeal						
	1956	1957	1958	1959	1960	1961	1962	1956	1957	1958	1959	1960	1961	1962
	1,000 metric tons	1,000 metric tons	1,000 metric tons	1,000 metric tons	1,000 metric tons	1,000 metric tons	1,000 metric tons	1,000 metric tons	1,000 metric tons	1,000 metric tons	1,000 metric tons	1,000 metric tons	1,000 metric tons	1,000 metric tons
Supply:														
Beginning stocks, January 1 . . .	96	109	98	72	105	91	78	3	4	3	4	4	4	4
Production . . .	183	160	187	272	313	273	337	47	58	66	71	50	57	85
Imports	661	514	550	734	716	706	706	15	7	11	13	19	28	16
Total	940	783	835	1,078	1,134	1,069	1,120	65	69	80	88	73	89	105
Distribution:														
Exports	41	45	65	92	99	93	124	40	42	54	58	32	40	57
Consumption . .	790	640	698	881	944	899	920	21	24	22	26	37	45	44
Ending stocks, December 31 .	109	98	72	105	91	78	76	4	3	4	4	4	4	4
Total	940	783	835	1,078	1,134	1,069	1,120	65	69	80	88	73	89	105

Compiled from official sources.

Table 24.—DENMARK: Oilseed cake and meal, imports and exports, average 1950-54, annual 1950-1962

Item	Average 1950-54	1955	1956	1957	1958	1959	1960	1961	1962
	Metric tons								
Imports:									
Cottonseed (total)	179,476	261,446	309,343	192,678	346,177	344,578	311,678	294,950	321,104
Cottonseed (from U.S.)	(26,813)	(113,891)	(43,381)	(109,958)	(28,257)	(29,821)	(53,334)	(15,667)	(35,560)
Sunflower	108,932	50,923	64,032	91,292	113,311	142,380	106,498	108,297	93,308
Peanut	30,595	20,081	37,322	24,556	28,371	27,063	29,324	56,849	55,419
Palm kernel	3,629	15,941	5,885	3,417	3,606	2,823	3,079	---	219
Soybean (total)	47,503	101,776	117,317	99,386	68,401	112,541	159,957	145,462	161,755
Soybean (from U.S.)	(4,356)	(23,266)	(29,115)	(20,338)	(7,366)	(14,315)	(30,448)	(64,659)	(101,850)
Flaxseed	19,171	11,942	16,347	15,615	27,399	25,308	27,688	26,625	19,899
Rapeseed	30,624	15,324	30,422	24,941	26,724	36,419	17,759	12,636	10,036
Hempseed	139	622	240	---	---	1,132	---	---	---
Copra	31,016	63,206	76,170	60,158	36,338	32,646	45,558	55,464	39,623
Sesame	809	---	100	610	306	681	328	203	82
Other	2,580	313	4,207	1,674	100	8,922	13,880	5,741	4,448
Total	454,474	541,574	661,385	514,327	650,733	734,493	715,749	706,227	705,893
Exports: 1/									
Soybean	7,889	17,971	25,368	27,898	35,494	61,446	77,958	65,213	88,102
Copra	1,407	4,634	5,284	8,326	14,271	8,699	8,041	12,978	16,337
Rapeseed	---	---	---	---	195	75	627	25	265
Peanut	33	30	30	---	51	445	458	1,777	1,271
Cottonseed	263	---	---	---	28	794	2,161	2,243	6,521
Palm kernel	2,743	3,983	7,496	6,929	12,260	14,501	6,515	6,902	9,103
Sunflower	---	---	---	---	45	273	253	15	910
Sesame	32	288	182	5	579	828	395	200	2
Other	1,773	1,883	2,731	1,607	2,488	3,231	2,613	3,318	1,067
Total	14,140	28,789	41,091	44,765	65,411	90,292	99,021	92,671	123,578

1/ Average 1953-1954.

Large feed-mixing mill along the harbor front, Aarhus, Denmark. Contrasting are old and new facilities of the same firm.

Two other small mills also have crushed vegetable oils from oilseeds, but operations at present are limited.

The present government policy favors imports of oilseeds over vegetable oil through a tariff and licensing system. The margarine industry can import 10 to 20 percent of crude vegetable needed. Also, crushers agreed to purchase 10 percent of oil requirement in rapeseed oil equivalent in domestic rapeseed for the margarine industry. Vegetable oils from the U. S. are not able to compete against oilseed imports on a price basis, thus the quantity of oilseeds imported is determined by the small domestic demand and exports of processed oils, as in the case of coconut, palm kernel, sesame and soybean oil. Soybean oil is the only major vegetable oil exported from Denmark. As this market expands, so will the crushing of soybeans.

Soybean Meal in Mixed Feed and Other Uses

Denmark has nearly 3.5 million cattle of all types; of this, 1.5 million are dairy cattle. Dairy cattle numbers have remained at about the same level since 1951-55, while total cattle numbers have increased about 15 percent.

Hog numbers have increased 75 percent during the same period and offer a growing market for oilseed meals.

Poultry production, mainly layers, have declined slightly, but broiler production as indicated by poultry meat production has increased three-fold in the past 7 years. In January 1962, the country had approximately 12 million layers and 8.5 million broilers.

Numbers of livestock and poultry in Denmark since 1956 and the 1951-55 average were as follows:

	Average 1951-55	1956	1957	1958	1959	1960	1961	1962 1/	1963
				Thousands					
Cattle									
Dairy	1,507	1,448	1,449	1,415	1,433	1,482	1,465	1,499	1,458
Beef and other	1,482	1,634	1,664	1,736	1,791	1,831	1,893	1,962	1,932
Total	2,989	3,082	3,113	3,151	3,224	3,313	3,358	3,461	3,390
Hogs	4,003	4,331	4,777	5,294	5,562	6,205	6,438	7,072	7,260
Sheep	43	-	-	36	36	42	46	46	46
Poultry	23,554	24,704	23,060	26,258	26,506	24,484	-	21,152	-

The mixed-feed industry in Denmark is reported increasing production at a rate of over 10 percent each year. One large independent feed mixer has more than doubled output since 1957, or an average of around 20 percent each year. At present the rate of increase is estimated at not more than 10 percent each year. Total production of mixed-feeds, including mixes prepared on large farms, is estimated at around 3.0 million tons. Commercial production is near 2.0 million tons.

Soybean meal is reported to be well-liked in Denmark and is being used at maximum desirable levels in mixed feeds at present, and future increase in use will probably come mainly from expansion of the mixed-feed industry and in substitution for other oilseed meals when price levels change. Some U. S. soybeans are used directly without cooking in mixed-feeds in Denmark to bring the oil content of the feed to desired levels. It is reported that 150 to 200 tons per month is used in this way.

Soybean meal is used in the following types of livestock feeds at the given percentages in Denmark:

Broilers	15 to 20 percent
Layers	15 to 17 percent
Hogs	6 to 10 percent
Dairy cattle	3 to 9 percent
Calves	15 to 34 percent

Soybean meal is utilized extensively in concentrates, and percentages used by both the large cooperatives and the private companies as given above for mixed-feeds range from 38 percent to as high as 67 percent.

Feed mixers in Denmark prefer high oil content cakes and meals because in many mixed feeds 6.5 to 8.5 percent fat is required. Mixers try to purchase cake in meal in areas where the known fat content is high. Some add stabilized animal fats manufactured in Denmark to their feed rations.

It is estimated that about 90 percent of all feedstuffs imports are handled by feed mixers' agents. These provincial importers loom large and important in the Danish feed trade, and most of these importers are the only firms handling feedstuffs in their community. These are so-called "provision firms". Practically all Danish feedstuff dealers manufacture their own cattle and poultry-feed mixtures. The types of mixed feedstuffs manufactured in Denmark are classified into those containing oil (which are to a large extent based on imported raw materials and contain soybean meal); and those feedstuffs containing fishmeal, meat and bonemeal, blood meal, green lucerne meal, and feeding chalk.

Import permits are not required for Danish feedstuffs, regardless of country of origin. There are in Denmark approximately 21 large manufacturers of feedstuffs. Many wholesalers and retailers, however, manufacture their own cattle and poultry-feed mixtures, but these are mainly small concerns. The 21 large firms have offices in Copenhagen with factories in Esberg, Nastecd, Fredrickshaven, Karise, Lunderskob, Lynge, Randers and Svendberg.

The country's importers and dealers total 87. Nearly every small town has its own mixing plant.

Feeding Practices.—Denmark is dependent on imported feedstuffs and oilseeds to obtain the bulk of high-protein concentrates needed for its large livestock industry. The most important ingredients used for mixed feeds, however, are corn, milo, barley, oats, wheat, which are supplemented by

Table 25.—DENMARK: Oilseed cake and meal, imports and exports, and total used for feed 1960-1962 1/

Item	Imports		Exports	Total	Stock	Imports		Exports	Total	Stock	Imports		Exports	Total
	Oilseeds meal equiv.	Oilcake and meal	Oilcake and meal	used for feed	change	Oilseeds meal equiv.	Oilcake and meal	Oilcake and meal	used for feed	change	Oilseeds meal equiv.	Oilcake and meal	Oilcake and meal	used for feed
	1960					1961					1962			
	1,000 metric tons					1,000 metric tons					1,000 metric tons			
Peanut	1.3	29.3	0.5	30.1	+1.2	1.1	56.8	1.8	54.9	+3.0	2.0	55.4	1.3	53.1
Cottonseed	--	311.7	2.2	309.5	-7.4	--	294.9	2.2	300.1	-3.6	--	321.1	6.5	318.2
Soybean	289.0	160.0	78.0	371.0	-7.0	234.9	145.8	65.2	322.5	+7.2	310.6	161.8	88.1	377.1
Rapeseed	--	17.8	0.6	17.2	+0.6	0.3	12.6	--	12.3	+0.7	1.2	10.0	0.3	10.2
Sunflowerseed . .	--	106.5	0.3	106.2	+0.1	--	108.3	--	108.2	-6.4	--	93.3	0.9	98.8
Copra.	15.2	45.6	8.0	52.8	-1.1	14.7	55.5	12.8	58.5	-1.4	13.0	39.6	16.3	37.7
Palm kernel . . .	8.6	3.1	6.5	5.2	-0.7	6.2	--	6.9	0	-0.6	8.3	0.2	9.1	0
Linseed	3.5	27.7	0.3	30.9	+0.5	-0-	26.6	0.3	25.8	-0.9	0	19.9	1.0	19.8
Other.	--	14.3	2.7	11.6	+0.2	5.2	6.0	3.4	7.6	0	1.6	4.5	0.1	6.0
Total	317.6	716.0	99.1	934.5	-13.6	262.4	706.5	92.6	889.9	-2.0	336.7	705.8	123.6	920.9

1/ Source: Danish Statistical Office.

soybean and other oilseed meals, meat meal and bonemeal. Some fishmeal dehydrated alfalfa meal, and dried yeast are used. Feeds are supplemented with minerals and vitamins. Denmark uses two different standards to characterize the nutritional value of its feedstuffs. These are:

1. The feed unit content for 100 kilograms or 220.5 pounds.

2. The content of digestible protein in percent determined by pepsin-hydrochloric acid method. The feed unit content of feedstuffs as based on a chemical analysis on contents of crude protein, fat, any crude fat, any protein-free extract, fiber, ash and water. These are determined by methods of the Danish Ministry of Agriculture, after many digestibility experiments at the National Research Laboratory.

In Denmark, feedstuffs are mostly bought and imported, in order to make up for lack of proteins. As a result, the protein content has become the most important factor in establishing the selling price of mixed feeds and determining the commercial value of imported oilseed meals.

In Denmark the ration feed contains a high percentage of fiber. Barley supplies the energy instead of corn or milo. The protein used to supplement the grains comes from various sources. Soybean meal is in demand for swine feeding.

Soybean meal, according to the Danish farmer, has been too high-priced in recent years and he has relied on cottonseed meal and peanut meal to meet his needs. Much of the barley and oats used as feed grains are home-produced. As a result of the protein feeding program, butter and cheese are excellent quality and are exported mainly to the United Kingdom and Germany.

The major types of oil cakes used in Denmark are cottonseed cake, soybean, sunflower cake, peanut cake, coconut cake and palm kernel cake. In recent years, Denmark has made great strides in efficiency and utilization of protein. Production per animal unit has increased significantly through use of improved feeding methods and use of larger percentages of protein concentrates. Scientific advancements in the field of animal nutrition, which have increased the utilization of soybean meal, have been introduced.

Denmark has made rapid progress in the efficiency of poultry meat production by adopting modern methods. Many new formulations have been developed for poultry feeding, although old-fashioned feeding methods are still used. In the livestock industry, introduction of self-feeding and automatic watering systems has greatly facilitated feeding. Production of broilers is generally mechanized and the use of mixed feeds containing soybean meal is increasing.

Soybean meal feeds are also being used in pig feeding and free range conditions.

The protein content of purchased feedstuffs is of continued interest to the farmer, and this aspect of purchasing has led to the use of larger amounts of soybean meal. Chemical examinations have shown that proteins are the most important characteristic in the quality standards of the country. Nitrogen content is on all sales in the form of crude protein regardless of the fact that the crude protein content of the feedstuffs is recognized as being quite unreliable in determining value of particular feedstuffs as a source of protein for animals.

While the country uses large quantities of oilseed cakes and meals and other feedstuffs of fishmeal, it is expected that part of the expanded consumption of feed in future years will be covered by domestic feeds. However, it is realized that a larger amount of protein will be required to meet the

demand and to mix with domestically-produced feed grains. The use of fishmeal, which is growing rapidly, will probably take part of the demand from oilseed meals.

Many of the feed mills in Denmark are old-fashioned and the plants are of the old process, in which the various ingredients are filled in bins from which they are drawn in the portion desired. The final preparations of livestock feeds is scientifically up-to-date. New mills are being built and modern methods of mixing are now being used. Minerals and vitamins are pre-mixed and are contained in most feedstuffs. Many new plants that will prepare ingredients by modern methods are now being constructed. For cattle feeds, cottonseed cake and the other oilseed cakes are combined with molasses and minerals to produce a modern mixed feed. To secure higher oil value, the large amounts of formula feeds are made from non-extracted cakes from expellers, and in many instances the feeds have a maximum of 5 percent to 10 percent of soybean meal. For poultry feeds, the most widely-used ingredients are corn, barley, oats, wheat, soybean meal, wheat meal and bone, fishmeal, dehydrated alfalfa meal, dried yeast, minerals, vitamins and in some cases molasses and animal fats are used.

The mixed-feed industry serves a purpose in the Danish economic life.

Soybean Oil Uses and Demand

The soybean crushers in Denmark sell a large amount of soybean oil to the margarine industry (around 20,000 tons each year) and as a result of interindustry-relationships the industry has fixed a stable price for soybean oil to be paid by the margarine producers. By this method, the producer and consumer prices of margarine are stabilized. But soybean crushers often have difficulties when soybean prices move upward and adjustments in meal prices are made.

Soybean oil finds its largest market in margarine in Denmark. One factory produces half of the total margarine. Here soybean oil is looked upon as an expensive ingredient, and only 10 percent is used at present. In general in margarine the percentages of fats and oils other than soybean oil average around 25 percent; hardened fish oil, 40 percent; coconut oil, and 10 percent palm oil. Up to 20 percent soybean oil is used in other types of margarine and in general margarine, depending upon the price. In baking margarines up to 20 to 25 percent vegetable oils are often used. Margarine is used extensively in Denmark for frying and other cooking uses in the homes in place of shortening. At the present time fish oil is equivalent to around 4 cents a pound, and whale oil 6 cents a pound, which makes them cheaper than soybean oil at over 8 cents for use in margarine.

All margarine is distributed to the retail outlets by the A/S Margarine Compagniet M.C. This company markets the production of the three producers. It also formulates the percentage of ingredients used in margarine and conducts research to improve the different types of margarine. At the present time the company feels that the maximum amount of soybean oil, at present price levels, is being used.

Domestic production and consumption of margarine, the major use of all vegetable oils as well as soybean oil, has leveled off in Denmark, thus limiting the use of vegetable oils.

Production and consumption of margarine was:

	1938	1956	1957	1958	1959	1960	1961	1962
	1,000 metric tons							
Production	80.0	89.3	88.7	78.9	85.0	87.8	88.0	88.0
Consumption	80.0	88.5	88.7	77.7	84.1	87.4	87.6	87.6
Pounds per capita	47.4	43.9	44.7	37.2	40.2	41.3	41.2	41.2
(Fat content)	37.9	35.1	35.8	29.8	32.2	33.0	33.0	33.1

Production and consumption of butter (in 1,000 metric tons) was:

Production	--	--	--	--	--	166.7	171.1	161.0
Consumption	--	--	--	--	--	49.6	49.8	49.9
Pounds per capita	18.3	--	--	--	--	23.8	23.8	23.8
(Fat content)	13.8	--	--	--	--	19.0	19.0	19.0

Denmark's soybean oil exports have been at high levels in recent years and in 1962 and 1960 were three times the 1957 level. Exports fell 20 percent in 1961 in metric tons.

Exports, in metric tons, during 1957-1962 of crude, refined and hardened soybean oil were:

1957	1958	1959	1960	1961	1962
12,118	18,815	29,067	37,678	29,720	36,800

Sweden, Norway, West Germany, Netherlands, Malta, Austria, Romania, and East Germany have been the principal markets. Some large shipments have also been made to the United Kingdom, Switzerland, Ecuador and Chile.

Marketing and Government Controls

Marketing.—Soybean meal crushed in Denmark is marketed as soybean flakes rather than meal. Most mills do not have facilities for grinding meal as it is done in the United States. This may account for the preference for U. S. meal because of its finer texture as well as its lower moisture content.

Soybean meal arriving in bulk from the United States often presents an unloading problem to the importers in Denmark because the meal often is compacted during shipment in the lower levels of the ship. The meal often has to be dug out and because the feed-mixers receiving the meal have pneumatic unloading equipment which will not handle the hardened meal. The cost of unloading the shipments in such form are often increased greatly.

Soybean purchasing in Denmark is done under cooperative agreements. Soybeans are purchased by the two large soybean crushing mills as a joint operation. Tenders are requested from the large U. S. and international traders and grain firms for a cargo lot (10,000 to 12,000) tons. The mills

accept the lowest tender for a given quality, usually U. S. No. 2 but often U. S. No. 3 yellow soybeans are purchased; the cargo is then split between the two crushing mills when it arrives, with the Aarhus crushing mill taking the first part of the cargo, because of its deeper harbor, and the Copenhagen mill taking the balance of the cargo. The lightened ship can unload at the Copenhagen crushing mill's docks, but not the full cargo. Both mills have excellent pneumatic equipment for unloading and can handle 150 to 250 tons per hour each. Storage facilities are ample and are over 23,000 tons at both mills.

The feed mixer in Denmark is dependent on imports for the major portion of his ingredients. Added to this is the fact that, first, he is unable to find hedging facilities for his forward purchases or raw materials and second, he is also required to sell for forward delivery. However, these deliveries are small and his position is usually long.

One of the most important factors in the marketing of feedstuffs in Denmark is that well over half of the business is in the hands of cooperatives (about 52 percent to 53 percent in 1960). Cooperatives are also engaged in feed mixing as well as purchasing and distribution.

The transportation of feedstuffs and soybean meal in Denmark is done in bags and in most cases these are paper bags. The sale of feed to farmers in bulk has been developing slowly for two years but because of the small quantities purchased by each farmer the developments in this field have been started mainly by coops, probably because most compounds and feedstuffs are sold through small retail dealers whose stock-carrying capacities are based on bagged goods and markup calculated on individual bags. In many instances a change in the marketing system for soybean meal and compound feedstuffs would result only from the construction of special facilities and purchases of bulk trucks by small retailers. Also, the importers and feed manufacturers, which are usually the same firm in Denmark, would be required to construct special bins and other facilities for handling the materials. In the case of meals, the problem would be complicated, because unlike grain bins the heavy materials would not flow out of the bin in the same manner as grain.

Although some cattle feeds are stored in bulk, they are not generally sold in bulk as in the United States. In addition to the transportation and handling problems, the problems in the retail link and on the farms are complicated by troubles of a legislative nature. The delivery of feedstuffs in bulk involves special problems such as declaration of ingredients, control of distribution and other matters. There is no doubt that these problems are being solved. When this is done, the distribution of feedstuffs, including soybean meal, will be increased considerably. The Danish feed manufacturer and distributor of soybean meal still has the small independent operator as his most important customer and it is to this consumer the industry will continue to pattern its marketing and distribution facilities provided the formulation of feed compounds is demanded by him. Integration is not of much importance in the Danish feed industry.

Ocean freight rates to Denmark and Northern Europe for U. S. soybeans and soybean meal have declined in the past year. Full cargo rates in 1963 from U. S. gulf ports for bulk U. S. soybeans were as low as $5.00 - $6.00 a long ton compared with $7.00 in past years. Bulk soybean meal cargo is slightly higher and is around $8.25 - $9.25 long ton.

Government Controls.—The import trade of Denmark has now been liberalized and most commodities are on the liberalized list. Vegetable oils are not subject to quota restrictions and do not require import licenses. There are no difficulties with payments to Denmark.

Soybeans, peanuts, mustard seeds, cottonseed, copra, palm kernels and all types of oilseeds and oleaginous materials are imported free of duty. Also, oilcake and meals enjoy the same privilege. However, soybean oil crude or refined and other vegetable oils pay an ad valorem duty of 8 percent and 12 percent other.

From the early 1930's to 1955, Danish crushing mills had a monopoly on imports of oilseeds and oils to be used in the margarine industry. Since 1955 through a licensing system, the margarine industry has imported 10 to 20 percent of the raw oil needed for margarine. Thus, while there has been some liberalization the system greatly favors imports of oilseeds. Moreover, the margarine processors must purchase 10 percent of total fat consumption in the form of domestic rapeseed.

By the above policies, low-priced oils from the United States cannot compete against oilseeds from third countries in Danish markets, even if prices make it profitable for the margarine industry. The margarine industry often must pay higher prices for oils produced from imported oilseeds than what it would pay for U. S. oils. Bilateral agreements with USSR for oilcake make them noncompetitive. This includes only sunflower and cottonseed cake and meal.

The sale of feedstuffs containing soybean meal and other oilseed meals are controlled by the government. Firms mixing feeds are registered and are required to guarantee the contents of digestible pure protein in feed units (Scandanavia) and in certain cases the content of crude fat in feedstuffs. Common marks are used by registered firms to provide guaranteed standard feeds.

Guaranteed markings on containers or bags include the composition of the mixture date of manufacture and the animals for which it is intended, the manufacturer's name and address are also necessary on the bags. Supplements containing vitamins, and the like, must be guaranteed for kind and quality per gram of finished feed.

Summary

Denmark can be expected to increase net imports of oilcake and meal by 200,000 to 300,000 tons annually as soybeans by 1965. Demand for U. S. soybeans is high but can be expected to fill only half of this. Denmark's export oil markets can easily be expanded by 25,000 to 30,000 tons in Eastern and Western Europe. As a result, expected increase imports of U. S. soybean meal will be around 100,000 to 150,000 tons.

The Danish domestic need for oilcake and meal exceed its need for vegetable oils, and as a result the crusher demand for oilseeds and soybeans is largely dependent on the ability of the crushers to market in foreign trade their vegetable oils produced. The development of Eastern European trade may place Denmark in a favorable position to export vegetable and animal fats and oils and thus to increase its demand for oilseeds for crushing. In this respect, soybeans fit well into the demand-and-supply picture in Denmark.

Danish soybean mills could crush an additional 100,000 tons more soybeans each year, if markets could be developed for the soybean oil. However, the soybean crushing industry is now being operated at near-capacity levels on oilseeds. Increasing the soybean crush would entail reduced efficiency on other oilseeds such as copra, palm kernels and the like, that are now being given their final processing by solvent extraction. Screw-press capacity or batch solvent extraction capacities are available for this second crushing and

could be used on these oilseeds. Crushings in 1962 were around 374,200 tons. By 1965, crushings may reach 450,000 tons.

Soybean meal demand is increasing in Denmark, and with this demand increased exports of soybean meal may fall off slightly but not to a great extent, because soybean crushers have developed reliable markets for their soybean flakes in the other Scandinavian countries.

Danish farmers have a preference for protein meal containing a relatively high percentage of oil. But increased marketings of commercial feeds have tended to reduce the importance of this demand factor. The use of animal fats for supplementing the fat content of mixed feeds using oilseed meals is just starting to be introduced.

Continued expansion in production of mixed feeds is expected in Denmark at a rate of approximately 10 percent each year, and should result in an equal increase in demand for soybean meal. Soybean meal is always used in poultry and hog feeds in Denmark, and for these feeds it is considered essential. Production of mixed feeds in Denmark have been estimated for 1962 at nearly 3 million tons including production of concentrates for farm mixing. Of this amount around 800,000 tons is cattle feed and 1.5 million tons is poultry and hog feed. It is expected that the EEC countries will increase their demand for Danish poultry and ham, and this increase will result in continued expansion of the mixed-feed industry and in demand for soybean meal.

With the expansion of the soybean oil export market for Denmark in Western and Eastern Europe, its major markets appear to be opening up, and this indicates that oilseed crushers in Denmark might operate at a much higher level than at present on crushing soybeans. With consumption of vegetable oils increasing in these areas of Sweden, Norway, Czechoslovakia, the Netherlands, West Germany, East Germany, and Austria, crushing of soybeans can be expected to increase 25 percent (around 400,000 tons to 450,000 tons) by 1965. However, beyond this point, because of complications in marketing vegetable oils, Denmark is most likely to take its increased protein requirements in the form of oilseed cake and meal or fishmeal, probably in increased soybean meal over other oilseed meals, because it will be used primarily in hog and poultry feeding.

The USSR appears to be increasing sales of oilcakes and meals in the Danish market, and in the near future may become one of Denmark's largest suppliers, if the present trend continues. Marketing of USSR processed cottonseed, sunflowerseed, soybean, and linseed cake and meal in Denmark have increased rapidly because of barter transactions.

The Danish economy is running at a high level and this trend is expected to continue in the next few years. As a result, the outlook for U. S. soybean and soybean meal exports to Denmark is excellent.

Denmark has a tight labor supply, and this may curtail a great expansion in economic growth. Also, credit has tightened and some curtailment could be expected in the near future. Shortages of some feed crops have been felt in Denmark, but in the main increased exports of U. S. soybeans and soybean meal to Denmark will depend upon increased production of livestock products and increased exports of soybean oil and soybean meal.

Denmark is making application for membership to the European Common Market. With liberalization of oilseeds and oilseed meals, the country may be able to expand its market there for vegetable oils and oilseed meals to maintain its small crushing operations at a higher rate of capacity. In this case, Denmark would import relatively more soybeans than soybean meals from the United States.

Factors affecting the market for soybean meal in Denmark are, of course, related to the condition of the crops and the final harvest of grass silage and beet-root crops and potatoes.

Also, price is the important factor in buying soybeans, and the crushers buy either from the United States or China depending upon price. Availability has been an important factor during the past two years, as well.

Marketing factors also enter into the purchase of soybeans from the above two sources. The size of cargoes are important there because Denmark's harbors cannot handle cargoes larger than 12,000 to 14,000 metric tons. Danish crushers often have to pay higher freight costs to obtain the usual larger shipments from the United States.

There are still a few complaints about the quality of U. S. soybeans received in Denmark because of foreign material. Also some foreign seeds such as Morning Glory are giving some trouble, as well as other weed seeds such as Datura Stramonium and Abutilon Theophrasti. It is claimed that Chinese beans do not contain comparable amounts of foreign material. Some crusher education on U. S. Standards by the Soybean Council of America in Denmark appears to be necessary.

Italy

Italy, with a population of 50 million, is a growing market for U. S. soybeans and soybean meal. Substantial imports of soybeans in the past two years have resulted from the building of a new soybean mill by a private company, and installations of additional machinery for toasting and extracting by others. Two American companies are now cooperating with two oilseed crushers in Italy in joint crushing and feed-mixing operations.

Soybean oilmeal imports have been irregular in past years and may be restricted as a result of increased soybean crushing.

The increased demand for oilseeds and oilseed products will be dependent on changes in dietary habits. Italy is increasing its consumption of milk, eggs and meat, particularly poultry meat, while consumption of grain and flour is declining. The average income of around $490 per capita is one of the lowest in Western Europe, but it is increasing at the rate of about 2 percent per year. Increased wages and employment in Italy have stepped up consumer demand and increased per capita income. Increased investment of foreign and domestic firms has also aided in development of the economy.

About two-fifths of the population of Italy live on farms and about 19 percent of the national income is derived from farming. Farms average from 6 to 15 acres. Livestock products account for over 40 percent of the value of agricultural products. Wheat is the most important grain, and along with corn occupies about three-fifths of the total grain acreage.

Italy is the world's second largest producer of olive oil, and this supplies a large percent of the country's demand for fats and oils.

With a consumption level of around 2,800 calories per day, considerably above prewar, the country is increasing its consumption of livestock products substantially, though this is still low compared to other European countries.' Only 5 percent of the country's food and feed requirements are imported, and fats and oils and oilseeds are among the chief items. Imports of these amount to about 40 percent of consumption.

Prices of a number of important agricultural products are supported by government price-fixing, or by intervention of the agricultural cooperatives in the form of voluntary pooling arrangements. Flour, grain, olive oil, and certain types of livestock products are included. The country levies excise taxes on competing vegetable oils. The proceeds are used to help support olive oil prices.

Per capita consumption of poultry meat of 4.2 pounds in 1956 has increased to 10 pounds. Continued demand for poultry meat will bring a rapid increase in the demand for soybean meal for poultry feeds. Poultry meat consumption in Italy could triple and increase the demand for soybean meal in that country.

The fast growing broiler industry thus offers a large potential market for U. S. soybean meal in Italy. Poultry meat production in Italy has quadrupled in the period 1950 to 1961. Poultry production here has increased more than in any other Western European country. Poultry meat production has been at the following levels during this period in millions of pounds:

	Mil. lb.		Mil. lb.		Mil. lb.
Average 1951-55	- 159.5	1958	- 261.7	1961	- 436.5
1957	- 202.2	1959	- 293.0	1962	- 451.9
		1960	- 381.6	1965	- 650.0

The estimated number of broilers butchered during this same period is:

	Mil.		Mil.		Mil.
Average 1951-55	- 53.2	1958	- 87.0	1960	- 131.0
1957	- 70.0	1959	- 100.0	1961	- 145.0
				1962	- 152.0

Meat production is another factor that is creating an increasing demand for oilseed meal in Italy. Meat production has increased about three-fold since 1951.

	Mil. lb.		Mil. lb.		Mil. lb.
Average 1951-55	- 1,725	1958	- 2,083	1960	- 2,531
		1959	- 2,281	1961	- 2,774

Meat production is carcass basis and includes beef, veal, pork, mutton, lamb, goat, and horsemeat, and excludes variety meats, such as rabbits and poultry meats. Per capita consumption of meats has doubled during the 1951-62 period along with production. Per capita consumption of meat during this period was:

	Lb.		Lb.		Lb.
Average 1951-55	- 38	1956	- 46	1959	- 56
1955	- 40	1957	- 48	1960	- 58
		1958	- 49	1961	- 58
				1962	- 64

Milk and egg consumption has increased substantially. Milk production in millions of pounds was:

	Mil. lb.		Mil. lb.		Mil. lb.
Average 1951-55	- 16,663	1958	- 20,589	1960	- 21,270
1957	- 20,180	1959	- 22,042	1961	- 21,485
				1962	- 21,055

Production per cow in Italy is very low, but significant increases have been made and 1960 production per cow of 5,671 pounds is more than 15 percent above that of the 1951-55 average.

Egg production has also been stepped up and production has been as follows:

	Mil.		Mil.		Mil.
Average 1951-55	- 5,725	1958	- 6,320	1960	- 6,373
1957	- 6,197	1959	- 6,099	1961	- 6,623

Demand for Soybeans and Oilseed Cake and Meal

Italy is fast becoming a large importer of oilseeds and oil-bearing materials despite large olive oil production. During 1962 and 1961 over 630,000

Table 26.—ITALY: Oilseeds, imports and exports, average 1950-54, annual 1950-1962

Item	Soybeans (total)	Soybeans (from U.S.)	Peanuts (UN)	Peanuts (SH)	Copra	Palm kernel	Castor beans	Flaxseed
	M. T.	M. T.	M. T.	M. T.	M. T.	M. T.	M. T.	M. T.
Imports:								
Average:								
1950-54	9,159	---	---	---	17,981	346	6,474	23,073
Annual:								
1950.	1,297	---	---	---	16,025	1,198	7,261	42,143
1951.	38,594	(953)	---	---	32,725	534	7,697	18,015
1952.	12	---	---	---	20,927	---	4,632	19,717
1953.	762	---	---	---	5,933	---	6,461	19,008
1954.	5,130	---	---	---	14,298	---	6,320	16,484
1955.	---	---	---	---	1,919	206	8,379	34,741
1956.	3,584	(100)	---	---	9,846	592	6,690	34,403
1957.	8,587	(839)	3,964	101,266	17,008	---	7,765	41,710
1958.	5,235	(3,737)	5,073	94,101	15,293	---	7,773	15,375
1959.	58,783	(34,862)	1,436	102,506	12,850	2,884	4,119	8,676
1960.	213,713	(101,539)	2,708	54,383	21,774	1,256	9,747	15,204
1961.	204,646	(181,241)	3,732	70,896	19,443	254	9,436	13,009
1962.	337,301	(317,878)	5,313	77,448	23,717	300	9,464	14,029
Exports:								
Average:								
1950-54	---	---	103	---	---	36	---	59
Annual:								
1950.	---	---	94	---	---	130	---	29
1951.	---	---	53	---	---	52	---	32
1952.	---	---	37	---	---	---	---	15
1953.	---	---	36	---	---	---	---	17
1954.	---	---	296	---	---	---	---	203
1955.	23	---	277	---	---	---	---	81
1956.	---	---	2,970	---	---	---	---	23
1957.	18	---	1,759	---	---	---	---	16
1958.	---	---	1,839	---	---	---	---	24
1959.	---	---	576	---	---	1	---	35
1960.	---	---	294	2	26	27	2	23
1961.	---	---	---	---	---	---	---	49
1962.	---	---	15	15	---	---	---	50

Table 26.—ITALY, Oilseeds, imports and exports, average 1950-54, annual 1950-1962—(Continued)

Item	Mustard seed	Rapeseed	Poppyseed	Cottonseed	Sesame seed	Hempseed	Sunflower seed	Other oilseeds	Total imports
	M. T.	M. T.	M. T.	M. T.	M. T.	M. T.	M. T.	M. T.	M. T
Imports:									
Average:									
1950-54	369	3,777	1,572	1,219	9,755	331	2,843	15,597	92,496
Annual:									
1950.	235	4,081	158	--	8,483	117	5,805	6,770	93,573
1951.	399	11,260	690	158	7,134	160	2,444	17,201	137,011
1952.	901	413	1,289	201	6,901	693	92	18,237	74,015
1953.	275	1,054	2,324	713	21,872	293	2,659	17,932	79,286
1954.	38	2,079	3,402	5,022	4,387	392	3,215	17,831	78,598
1955.	75	4,634	2,836	522	8,139	284	2,548	25,188	89,471
1956.	93	7,005	1,026	256	28,176	321	5,778	2,210	99,980
1957.	1,160	38,416	45	2,908	16,648	83	1,217	12,516	253,293
1958.	50	78,600	20	26	18,331	271	1,817	5,130	247,095
1959.	5,373	81,865	21	3,813	18,958	15	3,055	2,454	306,808
1960.	76	39,174	26	605	25,712	1,046	54,020	1,589	441,033
1961.	128	64,854	348	38	19,765	474	93,155	2,896	503,074
1962.	313	103,364	--	529	20,687	460	32,225	4,840	629,990
Exports:									
Average:									
1950-54	2,007	52	2	378	3	--	39	--	2,679
Annual:									
1950.	2,370	--	--	1	15	--	126	--	2,765
1951.	1,872	--	--	26	--	--	--	--	2,035
1952.	1,458	228	8	60	--	--	61	--	1,867
1953.	2,124	19	--	375	--	--	--	--	2,571
1954.	2,213	15	--	1,421	--	--	9	--	4,157
1955.	1,058	39	--	40	--	--	8	--	1,526
1956.	1,423	85	--	23	--	--	35	--	4,559
1957.	1,641	--	--	--	--	--	10	15	3,459
1958.	1,743	--	--	--	--	--	--	19	3,625
1959.	1,708	--	--	128	--	--	6	14	2,468
1960.	1,599	96	--	121	--	5	1	71	2,267
1961.	1,552	182	--	25	--	--	--	197	2,005
1962.	1,509	--	--	--	4	--	--	285	1,878

Table 27.—ITALY: Oilseed cakes and meals, supply and distribution, 1960-1962

Type of cake and meal	Produced from						Total		
	domestic seeds			imported seeds					
Production	1960 1/ metric tons	1961 metric tons	1962 metric tons	1960 1/ metric tons	1961 metric tons	1962 metric tons	1960 1/ metric tons	1961 1/ metric tons	1962 metric tons
Peanut	6,188	6,311	--	29,687	36,865	40,273	35,875	43,176	40,273
Hempseed	532	535	611	743	327	317	1,275	862	928
Colza and rapeseed	5,602	4,918	5,523	23,113	38,263	60,985	28,715	43,181	66,508
Copra	--	--	--	7,394	6,610	8,064	7,394	6,610	8,064
Cottonseed	6,291	1,387	4,731	478	300	418	6,769	1,687	5,149
Rice germ	3,917	4,100	3,990	--	--	--	3,917	4,100	3,990
Corn germ	80,784	109,242	113,373	--	--	--	80,784	109,242	113,373
Sunflowerseed	3,323	3,487	2,534	34,033	56,824	19,657	37,356	60,311	22,191
Linseed	3,268	3,341	2,903	9,578	7,935	8,558	12,846	11,276	11,461
Palm kernels	--	--	--	676	139	165	676	139	165
Tomato seed	9,444	13,200	10,510	--	--	--	9,444	13,200	10,510
Sesame seed	734	712	533	13,113	9,882	10,344	13,847	10,594	10,877
Soybean	347	258	288	175,245	163,716	269,841	175,592	163,974	270,129
Other	--	--	--	1,223	2,230	4,620	1,223	2,230	4,620
Total	120,430	147,491	144,996	295,283	323,091	423,242	415,713	470,582	568,238
Imports, total 2/							91,580	50,671	34,656
Supply, total 2/							507,293	521,253	602,894
Exports, total 2/							35,788	48,531	107,563
Domestic disappearance, total 2/							471,505	472,722	495,331

1/ Source: Assoliosemi, Central Institute of Statistics.

2/ Includes olive cakes.

Table 28.—ITALY: Oilseed 1/, supply and distribution, 1959-1963

Item	1959	1960	1961	1962 2/	1963 3/
	Metric tons				
Supply:					
Stocks, January 1	n.a.	n.a.	n.a.	n.a.	n.a.
Production	199,521	168,882	195,818	240,000	250,000
Imports	294,054	419,259	483,631	606,270	700,000
Total	493,575	588,141	679,449	846,270	950,000
Distribution:					
Exports	2,092	1,983	2,005	2,200	2,500
Human consumption	5,000	5,000	5,000	5,000	5,000
Feed	5,000	5,000	5,000	5,000	5,000
Crushing.	451,483	546,158	637,444	804,070	907,500
Seed and waste	30,000	30,000	30,000	30,000	30,000
Stocks, December 31 . . .	N.A.	N.A.	N.A.	N.A.	N.A.
Total	493,575	588,141	679,449	846,270	950,000

1/ Excludes rice germ meal, cornmeal and copra.

2/ Preliminary.

3/ Forecast.

Source: Assoliosemi, Central Institute of Statistics.

tons and 504,300 metric tons of oilseeds were imported. This was double that in 1957 and 1958. The 1962 and 1961 domestic production of oilseeds was around 240,000 and 196,000 tons, respectively, or close to 28 percent of total supplies.

The sudden surge in oilseed crushing has been marked by larger imports of soybeans. Imports of U. S. soybeans in 1962 and 1961 totaled 317,900 and 181,200 tons, respectively, nearly 80 percent more each year, and more than nine and five times, respectively, that of 1959 when soybeans were first imported into Italy from the United States in a large volume. In past, China has been the large supplier of soybeans, but in 1962 and 1961 over 90 percent of the soybean imports came from the United States.

While copra, castor beans, and flaxseed were formerly the main oil-bearing materials crushed in Italy, they are not being crushed at near former levels, but now large crushings are being made of soybeans, peanuts, rapeseed, sesame and sunflowerseed to fill the country's deficient edible olive oil supply. This also allows the country to export the more valuable olive oil to obtain foreign exchange.

Italy obtains large quantities of peanuts from Nigeria, a new source of supply, and minor quantities from the Sudan, Tanganyika, and the United Kingdom, by transshipment, and Senegal, Gambia, and Sierra Leone. Unshelled edible peanuts are obtained from Libya and Ethiopia. Copra is imported mainly from Indonesia, the Philippines, Mozambique and British North Borneo. Rapeseed is obtained from Denmark, Austria, and Sweden, but the bulk of the imports in 1960 and 1961 came from Canada. Sesame seed is obtained from Africa, Nigeria, the Sudan and Tanganyika. Bulgaria and Romania supply Italy with large imports of sunflowerseed and Yugoslavia supplies melon and squash seeds. France supplied large quantities of miscellaneous oilseeds.

Exports of oilseeds from Italy over the last 10 years have been very small and have never totaled over 6 thousand tons in any one year.

Oilcake and Meal.—Imports of oilseed meals in 1959 and 1961 were only slightly larger than exports. In 1955, imports were smaller than exports. Imports are made up of some olive cake, but most of the supplies are oilseed cake and meal. The United States supplied 12,700 metric tons, which was mainly soybean meal, of the 50,700 tons imported in 1961, and 43,500 tons of the 92,600 tons imported in 1960. In 1962, our exports of soybean meal were reduced considerably.

Italy's main exports of cake and meal are made up of olive cake, which is shipped to West Germany, France, Austria, Switzerland, Denmark, the United Kingdom, Hungary, and the Netherlands. Italy obtains most of its oilseed cake imports from Argentina, the United States, Turkey, Brazil, and Senegal.

Total oilseed cake and meal supplies in Italy were estimated at around 602,900 tons in 1962 and, in 1961, 521,300 tons, including olive cakes, with 1962 supplies nearly one-fifth above the 507,300 tons in 1960. Total net imported supplies were around 350 and 325 thousand tons in 1962 and 1961, respectively, and soybean meal, with equivalent in beans as meal, made up about three-fourths of the total in 1962 and half in 1961. Disappearance was 595,000 and 473,000, respectively.

Italy is importing more fishmeal than in former years and in 1961, 31,100 tons were imported compared with 30,600 in 1961 and 13,300 tons in 1959.

Large soybean solvent extraction crushing plant in Italy, showing an oceangoing freighter loading soybeans directly into the elevators for storage.

Soybean Crushing Industry

The oilseed crushing industry in Italy processed around 804,100 tons during 1961 of oilseeds and oil-bearing materials, including copra. The total of material crushed has been increasing from 150,000 to 100,000 tons a year during the past four years. Capacity in past years of the crushing plants has exceeded production, and many plants were forced to curtail production sharply or close down. Most plants remaining are now operating at a higher rate of capacity.

Large soybean crushing mill and meal storage facilities, Ravenna, Italy. Bagged soybean meal is being transported from plant by truck.

The margarine industry, that had a demand for around 50,000 metric tons in 1957 is growing, and probably has a demand for nearly 50 percent more oil at present.

The total oil-crushing industry is made up of 244 mills, many of them olive-processing firms that are dominated by 6 large firms. The oilseed

crushing industry is located mainly around Genova, Milano, Ferenze, Giammoro (Messina) and Lucca.

The two most important associations of crushers are the Associazione Nazionale tra gli Industriale degli Olii da Semi and Associazione Nazionale dell' Industria Olearia-Grassi, Saponi Affini. Both are located in Rome.

Several continuous solvent extraction mills have been constructed in recent years to handle all types of oilseeds. It has been estimated that 12 to 15 mills have processed soybeans. The main plants in the soybean crushing industry and their present capacity are:

Italy, Soybean Crushing Facilities, 1962

Name of plant	Location	Daily capacity 24 hours Metric Tons
Soja Ravenna	Ravenna	500
Giacomo Costa Fu Andrea	Vignole Barbera (Genova)	300 - 400
Central Soya - Seriom	Leghorn San Giovanni Valdarno	250
Oleificio Fratelli Belloli	Inveruno	250
Chemical Industry of Central Italy	Ancona	200
Other crushing mills	Rome - etc.	150
Total soybean crushing capacity	(solvent extraction)	1,650

On the basis of a 300-day working year, the annual crushing capacity for soybeans would be around 450,000 metric tons, which would produce about 400,000 tons of soybean meal. Three or four new solvent extraction plants are planned for soybean processing and a second mill is now being completed at Ravenna.

Soybeans are not preferred by crushing mills that have pre-pressing equipment for high-oil content oilseeds, because they prefer to maintain their entire plant in operation. These mills are not actually set up to crush soybeans, and when they do crush them it is not the most efficient use of their plant. (The screw-press capacity of these mills is not included in the above total.) Rapeseed is also being imported for crushing in larger quantities by most of these, because of the present large supply and low price.

Many mills produce only crude oil. This situation has now depressed the overall market for soybean oil. On the other hand, several of the large soybean crushing mills, as a result, are now limiting the volume of soybeans they intend to crush, in order to process oilseeds to produce a marketable blend of oil containing approximately 70 percent soybean oil.

Because of the large amount of tax income involved in oilseed crushing, the soybean crushers report that the government controls their operations very thoroughly to insure compliance with the law.

Soybean crushers report that there is very little profit at present in soybean crushing in Italy and that additional profits are earned only through integration of the industry into refining and marketing of vegetable oils.

Processing cost is said to be around 22 to 26 cents per bushel (on the basis of crude oil production) by several modern mills.

Soybean Meal in Mixed Feed and Other Uses

The spectacular growth of the commercial broiler industry has been the outstanding feature of the Italian livestock industry, evidenced by expansion of number of broilers. Total poultry numbers were 100 million in 1962, compared with 76 million in the 1951-55 period, a gain of approximately 33 percent. (Number of broilers in this total was not over 20 percent.) Italy's laying hens produce more farm income than hogs, with over 70 million estimated for 1959, and egg production reached its height in 1961, with over 6.6 million.

The cattle herds in Italy, in the early part of 1962, totaled around 10 million head, nearly 15 percent above the 1951-55 period, with largest growth in beef cattle, actual dairy cattle in 1962 totaled around 4 million, only about one percent over the 1951-55 average. Italy has a large number of dual-purpose cattle—with some breeds triple-purpose (used for work, dairy, and beef)—and as a result milk production per cow is very low. With modernization of Italian farming, work cattle are disappearing. The two important dairy breeds are Brown Swiss and Friesian, found mainly in Northern Italy. The dual-purpose cattle are the Romagnola and Marchigiana; the triple-purpose, the Pimonte, Greu Swiss and Pezzata Rossa. Development of the dairy industry has been retarded by cattle tuberculosis and lack of modern pasteurizing.

Hog numbers totaled nearly 4.5 million in 1962, nearly 12 percent over the 1951-55 average. Efficient feed conversion and high meat yields are providing profits, and with continued use of balanced feeds, the industry should continue to expand. Per capita consumption of pork is expanding--having risen from 8.5 pounds in 1951-55 to over 12 pounds, or about 50 percent—but use as fresh pork is still very low.

Sheep numbers in Italy have continued to decline; the total is only about 80 percent of the 1951-55 average.

The following figures indicate changes in the industry:

Type	Average 1951-55 Thous.	1956 Thous.	1957 Thous.	1958 Thous.	1959 Thous.	1960 Thous.	1961 Thous.	1962 Thous.	1963 Thous.
Cattle									
Dairy . . .	3,832	3,500	3,515	3,575	3,630	4,944 1/	4,950	5,200	5,150
Beef (dual-purpose) .	4,879	4,960	4,964	5,074	5,432	4,455	4,895	4,700	4,650
Total .	8,711	8,460	8,479	8,649	9,062	9,399	9,845	9,900	9,800
Hogs	3,920	3,863	3,921	3,900	3,845	4,148	4,335	4,500	4,600
Sheep . . .	9,760	8,572	8,543	8,626	8,393	8,343	7,899	8,200	8,100
Poultry . .	76,250	83,000	84,500	86,000	83,700	90,000	93,000	98,000	--

1/ Adjusted for dual-purpose cattle.

The Italian feed-mixing industry is expanding rapidly, and in the last 5 years has adopted the latest technology. Production has increased many times. Over 80 percent of the mixed feed manufacturers there use soybean meal in their feeds at a rate of 8 to 20 percent.

The mixed-feed industry was reported to have a yearly capacity of around 900,000 metric tons in 1959 and had a total of about 400 operating plants. Only about 160 of the mills are of importance, as the remainder are small local mills that have batch equipment and hand-operated units with very little modern mechanization. About 600,000 tons of mixed feed were produced by the industry in 1959, when production was 50 percent over 1956.

Feed mixing is integrated with flour milling and vegetable oilseed crushing. Also, approximately 44 percent of the total mixed feed as produced by a farmers' cooperative (the Federazione dei Consorzi Agrari—Federation of Farmers' Cooperatives) which is sponsored by the government. The cooperative, with headquarters in Rome, has 31 feed-mixing plants. The association representing the independent feed mixers are represented by the Associazione Nazionale tra i Produttori di Alimenti Zootechnici (Association of Italian manufacturers of feedstuffs), in Milan.

The feed-mixing industry has started to develop with the expansion of the Italian commercial broiler industry. The operations of U. S. poultry breeders who are now producing baby chicks in Italy gave the initial impetus to the industry.

Production of poultry feed for the industry in 1962 was 800,000 tons; this indicates that the number of broilers has a direct relationship to the amount of feed being mixed in Italy and the use of soybean meal. About one-fourth of the mixed feed tonnage is pelleted.

Two-thirds of the industry is located in Northern Italy, around the poultry production areas, particularly at Genoa and Milan. Large factories are also located at Eboli (Salerno) and Rome. About 89 percent of the soybean meal used in mixed feed is toasted.

The types of mixed feed produced in Italy, in 1961 and 1959, were as follows:1/

1959	Cattle	Hog	Poultry	Others	Total
Metric tons	150,098	55,614	358,800	33,488	598,000
Percent	25.1	9.3	60.0	5.6	100.0
1961					
Metric tons	205,000	225,000	450,000	20,000	900,000
Percent	22.8	25.0	50.0	2.2	100.0

1/ Reported by the Soybean Council of America, Inc.

The mixed-feed industry can be expected to produce over 1.2 million tons in 1962 and increase to over 2 million and possibly 3 million tons by 1965, according to several members of the industry.

Considerable expansion in the broiler industry is expected in the South of Italy, where conditions favor low-cost production. Also, demand is growing in that area as incomes rise.

Broilers are now being demanded by the hotel industry, but they are asking for birds of less than 3 pounds, while the retail industry takes birds

of 3 to 3.5 pounds. Although country-grown broilers are priced high, retail prices for commercial broilers are falling.

Besides the broiler and egg industry, the increased demand for mixed feeds from the livestock industry is resulting from better feeding practices, which are being introduced. In the livestock industry the small expected increase in numbers will not result in a very large increased demand for mixed feeds. The present trend in production is from the production of feed concentrates to the production of complete feeds. Complete feeds will make up about two-thirds of the industry's production this year. Since concentrates use larger percentages of soybean meal, the increase in production will not result in as large a percentage increase in the demand for soybean meal as would be expected. Thus a three-fold increase in production of mixed feeds will result only in doubling of demand for soybean meal.

Soybean meal used by some mixers who are using U. S. methods is as high as 15 to 20 percent of the complete feeds for poultry, but other mixers are using only 7 to 12 percent in poultry feeds, and less in other types. As price changes are important, it is expected that the use of soybean meal will increase. Soybean meal is used heavily in concentrates for poultry in Italy and averages around 40 percent.

About 50 to 60 percent of the mixed feed in Italy is now produced for the poultry industry. On the other hand, there appears to be an increase in the amount of mixed feed fed to hogs, and it has been reported that this volume now represents around 25 percent of total mixed feed, whereas cattle feed represents about 23 percent of total mixed feed produced, and other uses about 2 percent.

Feeding Practices.—The feeding of oilseed cakes and meals in Italy has not had the background of development found in North European countries, and there is a very large potential market here for soybean meal whether imported as such or as soybeans. Italy imports large amounts of feed grains for its livestock industry. Corn is the main grain used, and it accounts for around two-thirds of the feed grain consumed.

Average milk production per cow is low because many of Italy's cattle are fed on Alpine and other pastureland, with very little supplemental feeding. Heavier breeds of dairy cattle, however, are fed on irrigated pasture lands, and production is about one-fourth more per cow. There has been an upward trend in milk production per cow as a result of better management through improved feeding methods, using balanced mixed feeds and better handling techniques.

Beef cattle have always been fed on roughages and the consumption of oilcakes and meal by this industry will probably continue to be very low.

The consumption of mixed feeds by the hog farmers in Italy is very low but, with the development of commercial hog raising, this industry will continue to increase its usage of mixed feeds.

The potential market for mixed feeds containing large amounts of soybean meal and cake is in the Italian poultry industry. The industry's expansion has also been marked by an improvement in the feed conversion ratio. The average feed conversion rate is now around 3 to 1. The industry has not been using stilbestrol for several years. The feed required to produce a dozen eggs has been estimated at between 7 and 8 pounds. It has been reported that there is ample room for higher egg production with improved feeding techniques.

The sheep industry does not consume very much mixed feed or concentrates, but the rabbit industry is large and around 100,000 metric tons

of meat are produced each year. Mixed feed sales to this industry are expected to increase.

Soybean Oil Uses and Demand

The consumption of vegetable oil in Italy is, of course, determined by the supply of olive oil produced each year. The country's production of this oil will become less irregular each year, and oilseed crushings will satisfy the increase in demand with vegetable oils that have risen one-third from the prewar level (around 27 pounds) to 36 pounds per capita in 1962.

Italy produces about only half of the vegetable oils that she consumes. The bulk of her production consists of olive oil and there is also a small value of miscellaneous oilseeds produced.

Soybean oil in Italy is marketed generally mixed with other oils, as peanut oil and sunflowerseed oil. Generally, such mixtures contained approximately 70 percent of soybean oil. Olive oil is the major vegetable oil consumed in Italy. There has been an increased consumption of soybean oil in the past 10 years and, with the increased soybean crushing, it appears that soybean oil consumption will continue to increase.

Price is an important factor in maintaining and increasing the market for soybean oil. Soybean oil has sold for around 10 percent less than peanut oil and nearly half that of olive oil. Refined soybean oil sold for around 320-324 Italian lire in 1962 or 51-52 cents per kilo. The peanut oil, refined, sold for 334-336 lire or 53-54 cents per kilo. Sunflower oil sells for about the same price as peanut oil, while olive oil, refined, sells for around 540-550 lire or 87-89 cents per kilo.

Per capita consumption of vegetable oils in Italy in 1962 was around 13.2 pounds, or nearly one-fourth the total fats and oils consumed. Italy consumes more olive oil per capita than vegetable oils, and consumption totals 22.8 pounds in 1962 compared with 22 pounds in 1961, while vegetable oil consumption remained static at 13.2 pounds. In contrast with other olive-oil producing countries, Italy consumes a large volume of animal fats consisting mainly of lard, fatback, butter, and substitute fats used in shortening and margarine. Total per capita consumption averages around 19.9 pounds in 1962, compared with 18.4 pounds in 1961 and 22.3 pounds in 1960.

Production of margarine and shortening in Italy has now started to increase. Much of the margarine shortening is used by the baking industry and other food-processing industries. Per capita consumption is estimated at around 2 to 3 pounds per capita. Butter consumption was around 4.3 pounds in 1962, and 3.5 pounds per capita in 1961, compared with 4.4 pounds in 1960. Total fats and oils consumption for edible use in Italy has increased steadily since the prewar period, and in 1963 is expected to be around 48.7 pounds compared with around 39.6 pounds in 1959. Prewar consumption was around 24 to 25 pounds. Postwar supplies were low and per capita consumption did not reach this level again until 1950-51 and 1951-52. By 1954-55 when the United States Public Law 480 shipments of vegetable oil and fats were made to Italy, consumption started to rise significantly and by 1957-58 was over 33 pounds per capita.

Marketing and Government Controls

U. S. soybeans and soybean meal moving to Italy are sold through importers and dealers, the largest companies having offices in Rome, Torino,

Table 29.—ITALY: Fats and oils, supply and distribution and per capita consumption, 1959-1963

Item	1959	1960	1961	1962 (Preliminary)	1963 (Forecast)
	1,000 metric tons	1,000 metric tons	1,000 metric tons	1,000 metric tons	1,000 metric tons
Supply:					
Stocks 1/	95.4	47.7	48.2	49.6	62.4
Domestic production:					
Olive oil	299.3	331.3	427.1	427.5	340.0
Seed oils	41.0	40.1	42.4	46.7	48.5
Animal Fat 2/	283.7	307.4	286.5	296.0	307.0
Total	624.0	678.8	756.0	770.2	695.5
Imports:					
Olive oil	57.3	129.0	99.4	114.5	167.0
Seed oils	217.3	253.4	240.4	253.3	275.0
Animal Fat 2/	129.8 3/	197.0 3/	135.2	158.2	204.0
Total	404.4	579.4	475.0	526.0	646.0
Supply					
Olive oil	406.7	468.8	535.5	567.0	545.0
Seed oils	303.6	332.7	322.0	324.6	347.9
(Total vegetable oils)	(710.3)	(801.5)	(857.5)	(891.6)	(892.9)
Animal fat 2/	413.5	504.4	421.8	454.2	511.0
Total	1,123.8	1,305.9	1,279.3	1,345.8	1,403.9
Distribution:					
Exports:					
Olive oil	11.6	10.1	13.7	12.8	10.0
Seed oils	.4	.4	.2	.2	.3
Animal Fat	1.2	3.3	5.4	3.0	4.0
Total	13.2	13.8	19.3	16.0	14.3
Domestic consumption 4/					
Human	883.9	1,018.4	1,029.9	1,086.4	1,109.0
Industrial	50.3	79.9	29.6	28.4	30.0
Tallow	128.7	184.8	150.9	152.6	200.0
Total	1,062.9	1,283.1	1,210.4	1,267.4	1,339.0
Domestic consumption by type:					
Olive oil	386.5	449.7	496.8	516.2	520.0
Seed Oils	264.0	332.3	297.2	300.0	312.0
Animal fat	412.3	501.1	416.4	451.1	507.0
Stocks	47.7	48.2	49.6	62.4	50.6
Total Distribution	1,123.8	1,305.9 5/	1,279.3	1,345.8	1,403.9
Per capita consumption by type of fat	Pounds	Pounds	Pounds	Pounds	Pounds
Olive oil	17.3	20.0	22.0	22.8	22.8
Seed oils	11.8	14.8	13.2	13.2	13.7
Animal fat	18.5	22.3	18.4	19.9	22.2
Total	47.6	57.1	53.6	55.9	58.7
Per capita consumption by use					
Human	39.6	45.3	45.6	47.9	48.7
Industrial	8.0	11.8	8.0	8.0	10.0
Total	47.6	57.1	53.6	55.9	58.7

1/ Including olive oil as of November 1 of the preceding year and seed oils not entered on January 1 of the year shown.
2/ Includes butter, tallow, lard, fatback, fishoils and other.
3/ Tallow imports in 1960 include 20,000 tons of tallow entered in 1959 but included in 1960 data by the Central Institute of tatistics.
4/ Domestic consumption on basis of type of fats.
5/ Consumption - 39,200 metric tons excess

Milano, and Genoa. The cooperative farmers society is the large farmers' cooperative marketing and buying agent. The Federazione Italiana dei Consorzi Agrari in Rome imports and markets feedstuffs and buys it also and has a representative buyer in the United States. Several firms are buying direct from U. S. exporters.

Ocean transportation rates of bulk U. S. soybeans from U. S. gulf ports to Northern Italian ports have been reduced considerably as volume increased. Ocean freight rates quoted from U. S. gulf ports to Genoa-Venice area have in recent years been at $5.40-$5.65-$6.60 per ton and as low as $5.25 has been reported as fixed. Transportation costs for bulk soybean meal have been at the rate of 50¢-$1.00 per ton more. U. S. soybeans from Great Lakes' ports have not moved to Italian ports in recent months.

The actual market where U. S. soybeans are sold to the crushers is for the most part in Milano. Here on the floor of the Granaria Association large U. S. international traders have their representatives, where they can transact business with Italian importers and crushers. Business is currently transacted on Wednesday of each week.

The soybean crushing industry in Italy has no complaints on the quality of U. S. soybeans, which they are now buying on the basis of USDA grades. However, a few cargoes of soybeans have contained an excess amount of dust. Nevertheless, U. S. soybeans are preferred to Brazilian and Chinese soybeans.

The crushing industry in Italy has an excellent demand for soybean meal, and it is reported that some direct sales have been made to businessmen in Greece, France, and even Spain and West Germany. The latter sales were not confirmed. The market in Italy, however, is reported very good.

Marketing of soybean oil processed locally is at times a difficult problem for crushers, and particularly for those that produce only crude oil. The market for these oils is now reported to be very good.

Vegetable oils are marketed as mixed oils, for example, soybean oils are marketed mixed with 30 percent other oils such as peanut and sunflower—seed oils by several firms. However, 5 percent sesame oil is required to be mixed with seedoils.

More packaged oils are now moving to consumers in Italy, and refined oils are being marketed in consumer-size packages.

Price is an important factor in maintaining the market for soybean oil in Italy and even with profit margins reduced crude soybean oil in 1962 was sold for 278/280 lire, 45 cents, per kilo compared with peanut oil crude at 304/306 lire, 49 cents, per kilo, and crude olive oil at 503/508 lire or 81-82 cents. Refined soybean oil in 1962 was sold wholesale for 320/324 lire (51-52 cents) per kilo.

The sacks or other containers in which the oilcake and meal is transported must have affixed a statement indicating the name and address of the producer, oilseeds processed from, value of nutritive substances, and guarantee of absence of toxic material to cattle, also content of nitrogenous substances, fats and non-nitrogenous extract, other limits not over 2 percentage points apart for nitrogenous and fatty materials or over 4 percentage points apart for extractive substances. Tolerances of 2 percent for proteins and 1

percent for fats are allowed. This statement must appear on commercial and shipping documents.

Moisture content, crude protein, crude fat and crude fiber, ash, N.F.E., are now required on mixed-feed labels. Also, mixed feed requires a date of manufacture and number of authorization to manufacture mixed-feed and a declaration of simple feeds which are used, listed in decreasing order of quantity present in the mixture, also, the animals for which the feed is to be used. For feed concentrates, instructions for use must be given, and what has to be added, and how much to feed animals.

Government Controls and the EEC.--Despite the fact that Italy produces only about half of the vegetable oils that she consumes, the country's import policy is designed to protect her domestic high-priced olive oil production. A variety of duties, taxes, levies, and the like, are used to restrict the imports of edible oils and also some restrictions are placed on their domestic use. Italy's duty structure encourages imports of oilseeds for crushing rather than importing of crude and refined edible oils.

The import duty on soybean oil, both crude and refined, is set as of August, 1962, at 15.7 percent ad valorem from EEC countries, and from the United States at 18.4 percent for crude and 19.8 percent for refined soybean oil; for technical use, it is 3.7 percent from EEC countries and from the United States 5.1 percent crude and 6.6 percent further processed. However, imports of U. S. soybean oil in the past have been made by the Government under PL 480 or AID programs duty-free and this oil was very important in helping to meet the country's deficiency in fats and oils. In recent years, the expansion of the crushing industry has provided for the demand for edible oils not provided for by olive oil and domestic oilseeds.

Import licenses are not required for imports of soybeans, feed grains, and many other U. S. agricultural commodities that have been subject to U. S. dollar licensing in the past. Imports of soybeans from non-dollar areas have not been subject to licensing. Soybeans have been free of import duties, but the Border Tax applies to the oil content of each oilseed imported. The specific oil content of each oilseed is calculated according to crude oil yield percentages.

Crushing of oilseeds, including soybeans, is subject to a fabrication tax of 60,000 lire (96 United States dollars) for each metric ton of oil content. Yield rates fixed by current Italian regulations may have some effect on oilseed imports. Soybean yields are set at 17 percent for solvent extraction and 12 percent for pressure. Soybeans and other oilseeds are also subject to other minor charges as a 3 percent "ad valorem" sales tax; an administrative charge in the amount of 0.5 percent of "ad valorem"; and a fixed statistical charge in the amount of 10 lire per quintal of oilseeds. Also, there is a port tax in the amount of 3.50 lire (0.6 cent) per quintal; a disembarkation tax in the amount of 6 lire (one cent) per quintal of seeds; and a "yarn" fabrication surcharge in the amount of 50 lire (8 cents) per quintal of oilseeds in case seeds are imported in bags.

A fabrication tax of 19.32 cents or 120 lire per kilogram is added to margarine production, in addition to the high cost of oil, because of high duties previously applied. The policy of the government is to keep the price of margarine high by taxing the producer so that the product cannot compete too freely with high-priced butter.

Oilcake and meal are exempt from duty if these contain less than 7 percent oil and since soybean cake and meal being exported from the United States has an oil content lower than this, they are exempt. No import license

is required on oilcake and meal. They are, nevertheless, subject to an administrative charge of 0.5 percent "ad valorem" and a 3 percent sales tax (I.G.E. tax) assessed on the basis of the value of the goods plus administrative charges.

The EEC.--There is every indication that entry of Italy into the European Common Market will greatly enhance the possibilities for developing a larger market for U. S. soybeans and soybean cake and meal in Italy. This will be accomplished through reduction in trade restrictions now existing, and the different taxes levied on imports. Moreover, with the common relationship between prices in these areas, the price of edible vegetable oils in Italy may be lowered to bring them more in line with the irregular price in other areas such as West Germany and the United Kingdom. These countries are large margarine consuming areas, and when prices for margarine in Italy fall to the level of the other countries an opportunity will exist for further development and use of vegetable oils.

Summary

Enhanced by the strong demand for meal from an expanding feed-mixing industry, the swing to soybean crushing in Italy has developed rapidly in recent years. Soybean imports from the United States in 1962 reached a record of over 317,900 metric tons compared with 181,200 tons in 1961 and only 101,500 and 34,900 tons in 1960 and 1959, respectively. The crushing industry in Italy can now process about 550,000 tons of soybeans annually and at least one new plant has recently been completed and possibly four new plants are expected to be built in the near future. Increased consumption of soybean oil in 1962 and 1963 has resulted from the decline in olive oil production, but unless the marketing problems connected with soybean oil are solved it is most probable that the crushing of soybeans will not increase at this rate in the next few years. The tendency for crushers to market a soybean oil blended with peanut and sunflowerseed oils to meet consumer acceptance will no doubt tend to hold down the volume of soybeans crushed. The market has been depressed because of increase in soybean oil supplies, but as olive oil supplies declined, the demand for domestic soybean oil increased.

Furthermore, most of the profit has been taken out of the crushing margin in Italy in recent months and it is expected that very little additional expansion of crushing facilities will take place other than the four now planned. As a result of this expansion, it appears that in the next few years the crush for soybeans will reach over 400,000 tons of U. S. soybeans. With added facilities now planned in production the crush should reach over 500,000 tons by 1965. This will be necessary to supply the demand from the feed-mixing industry that is expected to be mixing over 3 million tons by that year, requiring over 400,000 tons of soybean meal.

Italy will import soybean meal from the U. S. only if the price position is very favorable. Since the government is greatly in favor of domestic crushing of oilseeds and soybeans in particular, it can be expected that the volume for soybean meal imported from the United States will continue to remain at lower levels than past years. Imports in the first 9 months of 1962 were only 661 tons, but because of heavy increase in demand in excess of domestic production, imports in early 1963 from the United States were stepped up.

With the opening up of the Italian market under the EEC it is possible that the marketing problem for soybean oil can be solved, and this may add to

the possibility of crushing more soybeans in Italy to meet the demand for soybean meal in the mixed-feed industry. Further, this may lead to the importation of soybean meal from other EEC countries.

Italy has had a rapidly growing consumer demand for several years, and it is expected to hold its upward trend in 1963. Future expansion in demand will result from increased wages and expanding employment. As a result, industrial expansion in the fats and oils and feed-mixing industries segments can be expected to continue. The market for U. S. soybeans in Italy should be favorable for expansion in 1963 and following years, but the market for U. S. soybean meal is declining as Italy's soybean crushing industry expands rapidly. Heavy sales of feed grains to Italy in 1961 increased demand for U. S. soybean meal, but improved crops and increased crushings in Italy in 1962 have had a very negative influence on U. S. meal imports.

Foreign capital has found a good market in Italy, and several large American oilseed processing firms are expanding their operations there. As a direct result of American investment and the development of the poultry and hog industries, increased marketings of U. S. soybeans are expected to be made in Italy. Soybean meal provides the principal source of protein for the Italian mixed feed industry. As more mixed-feeds are fed in Italy, there will be an increase in the demand for soybeans and soybean meal. Improvement in feeding practices and methods, and continued expansion of the broiler industry, will require a supply or a market for 400,000 to 500,000 tons of soybean meal or soybeans equivalent by 1965. If the broiler industry doubles production by that year, as present trends indicate it may, there will be a much larger demand for soybean meal by that industry.

The consumption of vegetable oil in Italy, of course, is dependent upon the supply of olive oil produced each year. The country's production of olive oil will become less irregular each year, but will continue to be below the country's total demand. As a result, oilseed crushings are expected to supply the vegetable oils to meet the balance of the country's needs.

In 1959 the crushing industry was operating at an estimated crushing rate of 65 percent. At present, it is operating at nearer capacity levels, but new equipment that can crush soybeans is being installed, and the industry should soon be able to handle with ease up to 500,000 tons of soybeans. Increase in the consumption of poultry to rates equivalent to that in France and West Germany will provide an even larger market for oilseeds and oilseed meals in Italy than is now foreseen. This amount of soybean imports would provide 20 million pounds vegetable oil or about 4 pounds per capita, which is equivalent to the present rate of increase population and per capita consumption of fats and oils in the country.

Disposition of the soybean meal produced of about 400,000 tons is needed by the poultry industry to raise an additional 200 to 300 million birds and to step up hog production.

Protein consumption in Italy has been around 78 grams per capita, and this is somewhat below that found in many other Western European countries. Fat consumption is high in Italy, and averages around 45 to 48 pounds per person per year, about equal to U. S. levels of 46 pounds.

The Netherlands

The Netherlands is our second largest market for soybeans in Western Europe, and receipts are generally substantially above soybean imports as large transshipments are made into Western Germany. Soybeans, principally from the United States, accounted for 36 percent of all oilseed imports. U. S. soybeans made up 84 percent of 263,000 metric tons imported in 1961, compared with 89 percent in 1960 of 338,500 tons. In 1962, U. S. soybean imports jumped to 341,700 tons, or 93 percent. Soybean meal imports from United States were 53 percent of 70,100 tons in 1961, compared with 58 percent of 104,400 tons in 1960, but, in 1962 imports of U. S. soybean meal were 85 percent of 128,500 tons.

The Netherlands, with a population of around 11.8 million people in 1962, is expected to continue importing large quantities of U. S. soybeans and soybean meal in 1962 and following years. It has a stable population, with a growth rate not more than 0.4 percent per year. The country has only 13 percent of its population engaged in agriculture and it is primarily an industrial country, a crushing and refining country for oilseed and oilseed meals.

The agriculture of the country is, nevertheless, highly developed, and specialized extensively in the production of livestock products and specialty crops. To meet the demands of the developing poultry industry in recent years, the amount of soybean meal exported directly from the United States has increased five-fold since 1955. Demand levels for soybeans, on the other hand, are established by the country's ability to export soybean products, namely soybean oil, as well as livestock products.

Dutch farms are small and medium-sized compared with the rest of Europe, and they are generally family-operated. Dutch agriculture is basically a grassland agriculture which supports a heavy livestock population. There is an almost complete dependence on pastures and hay production except for imports of feed grains and oilseeds and oilseed cakes and meals which are fed as concentrates. Dairying is said to be the keystone of Dutch agriculture.

Farmers produce extensive amounts of feedstuffs and convert this and the imported materials into livestock products for export and domestic consumption. Meat, milk, eggs, and poultry meat are the principal agricultural products and they account for three-fourths of total agricultural output. Feed and food grains, mainly rye, wheat, oats, and barley are the main crops produced, along with sugar beets and potatoes for food, feed and starch.

The economy of the Netherlands is very strong, although there is a considerable labor shortage in the country. There has been an expanding demand for exports, and increased consumer purchasing at home. Rising productivity and full employment have provided a relatively stable cost of living. Rising wages resulting from EEC adjustments and high consumer income indicate that the market for U. S. soybeans and soybean meal can be expected to increase.

Per capita income in the Netherlands has been quite low in past because of low wages and has averaged around $600 to $700 per worker. However, in 1962, with income rising, the average per capita income is now over $800.

Food consumption levels in the Netherlands have been around 2,900 calories daily per person despite the country's large production of livestock

products. This level is slightly below prewar levels, but consumption of whole milk, fats and oils, and fruits is above previous levels.

Per capita consumption of protein—at around 75 grams per capita daily—is significantly below other countries of Western Europe. The fat consumption rate is around 112 grams per capita. The present annual level of margarine consumption in the Netherlands, at around 45 pounds per capita, is somewhat high in view of the country's large production of butter, around 10 pounds per capita.

Butter, cheese, condensed milk, and milk powder are important products exported in large quantities from the Netherlands. About 30 to 40 percent of butter production, 50 percent of cheese, most of the condensed milk, and 35 to 40 percent of the milk powder are exported. Many shipments of the latter products go to tropical and sub-tropical areas. The Netherlands occupies first place in the world cheese exporting countries, as well as with condensed milk, but the domestic demand is small.

Poultry meat consumption appears to be one of the most important factors relating to the consumption and demand for soybeans and soybean meal in the Netherlands. Export markets for Dutch poultry meat are also growing. Increased per capita consumption and demand for poultry meat in the Netherlands is supplied by domestic production and could expand to more than six times the present rate of 5 pounds per capita if the consumption rate is to be near the present levels of the United States. Present per capita upward trend in the Netherlands is as follows:

Carcass Wgt. Lb.	Carcass Wgt. Lb.	Carcass Wgt. Lb.
1955—2.7	1958—4.5	1960—4.7
1956—3.4	1959—5.1	1961—5.0
1957—3.8		1962—5.3

While per capita consumption has increased significantly in poultry, the poultry meat production in the Netherlands has been particularly productive. At present, levels of production are approximately 5 times those in the 1951-55 period. The Netherlands has been exporting large quantities of poultry meat, and production, therefore, has increased faster than consumption. Present levels of poultry meat production, compared with those in past years are as follows:

	Mil. lb.	Mil. lb.	Mil. lb.
Average 1951-55	—44.2	1956— 91.9	1959—161.6
1955	—76.7	1957—110.2	1960—203.2
		1958—129.0	1961—218.6

The number of broilers can, therefore, be estimated to have increased from around 15 million broilers produced and slaughtered in 1951-55 period to around 72 million broilers slaughtered in the 1961 period, an increase of approximately five-fold. Per capita meat consumption in the Netherlands has not increased as fast as in most countries of Western Europe, and meat consumption in 1960 was only about 25 percent over the 1951-55 period. Production had jumped about 50 percent as a result of the doubling of exports. Present per capita meat consumption in the Netherlands compared with past years in pounds is as shown on following page.

	Lb.	Lb.	Lb.
Average 1951-55	80.9	1956	89.0	1959	88.0
1955	87.0	1957	91.0	1960	99.0
		1958	86.0	1961	99.0
				1962	108.0

Meat production increased as follows:

	Mil. lb.	Mil. lb.	Mil. lb.
Average 1951-55	1,086	1958	1,291	1960	1,551
		1959	1,324	1961	1,466

(Meat production is reported on a carcass basis and includes beef, veal, pork, mutton, lamb, goat and horsemeat, but, excludes edible variety meats, rabbit and poultry meats.)

Production of eggs in the Netherlands has nearly doubled in the period from 1951 to 1960 as shown:

	Mil.	Mil.	Mil.
Average 1951-55	2,964	1958	5,254	1960	5,325
1957	4,578	1959	5,250	1961	5,200

Milk production in the Netherlands has also increased significantly. The 1960 level was approximately 25 percent above that of the 1951-55 average as shown below:

	Mil. lb.	Mil. lb.	Mil. lb.
Average 1951-55	12,691	1958	13,757	1960	15,075
1957	13,323	1959	14,134	1961	15,329
				1962	15,940

Improved feeding practices for dairy cattle have increased average production per cow to the highest levels of any nation's in the world and record levels of 9,295 pounds per cow were obtained in 1961. Record levels of milk production per cow in the Netherlands has been maintained for many years. Levels of production per cow are shown as follows in pounds:

	Lb.	Lb.	Lb.
Average 1951-55	8,414	1958	9,153	1960	9,025
1957	8,962	1959	9,153	1961	9,295

Among the factors contributing to the increased production in the Netherlands were larger numbers of cows, better than average fodder supply, and improved feeding practices. Production per cow has also accounted for some of the gains. Egg production for the small husbandry flocks has increased as a result of improved feeding practices and consolidation of flocks into larger sizes.

Left, moving U. S. soybeans from ship to canal barge, by floating elevators, at Rotterdam. Above, unloading soybeans from a canal barge in the Netherlands.

Demand for Soybeans and Soybean Cake and Meal

Oilseeds.—The Netherlands is greatly dependent upon oilseed imports, and these imports have doubled since 1950. Soybeans make up nearly one-half of imports, and imports of this oilseed have doubled since 1956 and show a steady use over this period. As a result, the oilseed crushing industry in the Netherlands has expanded its operations rapidly in the last few years compared with the postwar years of 1945-50.

Crushing of oilseeds has, like imports, nearly doubled since 1954. As a result, the Netherlands has become a large crusher of imported soybeans and palm kernels, flaxseed, rapeseed, and many minor oilseeds. Nevertheless, soybeans have been the major oilseed crushed. Copra imports have declined somewhat in recent years. On the other hand, there have been increased imports of peanuts, palm kernels, flaxseed, and in some years, rapeseed. Imports of oilseeds in 1962 and 1961 for crushing were around 768,400 metric tons and 721,000 tons, compared with around 400,000 tons and less during the 1950-54 period.

Domestic production amounts to only a small volume of flaxseed and other minor oilseeds. Also, a small volume of corn germ is processed, producing over 5,000 tons of corn oil each year.

The Netherlands exports minor quantities of oilseeds and in 1960 and 1961 only around 35 thousand tons were exported; nevertheless, this was nearly double the level of the 1950-54 period.

Many companies in the Netherlands have trading connections and investments in oilseed plantations and merchandising operations in Africa, Asia, and Pacific areas, where oilseeds and oil-bearing materials are produced. As a result, their trading interests obtain materials from these sources first and obtain U. S. oilseeds as the residual requirement.

While the United States was the major source of soybeans, the major oilseed imported into the Netherlands, sources of supply were nevertheless world-wide. Soybeans were also obtained from China, Canada and Brazil. Peanuts came from Nigeria, the Union of South Africa, India, and other African areas in large quantities. Copra was obtained principally from the Philippines and Indonesia; although British Borneo, Malaya and Singapore made large shipments to the Netherlands. Palm kernels were obtained mainly from Nigeria with smaller shipments from the Congo, Sierra Leone and French African areas. Flaxseed from the U. S. totalled 54,077 tons in 1960 but dropped to 38,641 tons in 1961, as supplies shortened in the United States. Canada and Argentina were also large sources of supply. Some flaxseed is obtained from Belgium and Luxembourg. Rapeseed, poppyseed and other oil-bearing seeds are obtained from Denmark, Canada, Romania, France, and Ecuador in shipments over 1,000 tons but minor shipments are obtained from 30 or 40 other countries.

Exports and actual reexports of oilseeds from the Netherlands have never been large and average between 20,000 and 35,000 tons each year. They go mainly to Western European countries with shipments of copra being made to France, and peanuts, flaxseed, rapeseed and poppyseed to West Germany, Denmark, France, Algeria and some to the United States. However, the Netherlands does receive large consignments through the port of Rotterdam for Western European countries.

Oilseed Cake and Meal.—The soybean meal market in the Netherlands is very competitive and oilseed proteins from 36 origins are regularly quoted at Rotterdam. In this market U. S. soybean meal must compete on a price and quality basis. While there is a preference for U. S. soybean meal because of its low moisture content and uniform quality, and also performance results, U. S. soybean meal does often move to a price that is at a noncompetitive level, and other meals are purchased in its place. The high demand for mixed feeds in the Netherlands and Western Europe is expected to continue through 1965, and with it will come a continued high demand for U. S. soybean meal. The present European market, of which Rotterdam is the center, has a present demand for around 7.5 million tons of oilseed meals. Traders and industry people say that this demand is expected to increase to around 9.5 to 10 million tons by 1965.

The Netherlands imports large quantities of oilseed cake and meal each year, and this, added to the domestic produced oilseed cake and meal supply, is equivalent to nearly one million tons of cake and meal, the total supply in the country. But the Netherlands is exporting more soybean meal and other meals than in previous years.

Soybean meal imports have increased substantially in the past 5 years and in 1962 at record levels were more than double the volume imported in 1955. United States supplied 109,600 tons, nearly three times that of 1961. Linseed meal has always been an important ingredient for cattle feed in the Netherlands.

This meal has been imported in large quantities and has surpassed that of soybean meal. Other important oilseed meals used in the Netherlands are sunflowerseed, cottonseed, peanuts, rapeseed, sesame, copra and other.

New supplies of oilseed cake and meal and fishmeal in the Netherlands have continued to increase in 1962 as a result of production of fishmeal and oilseed meals. Increases have been made in imports of cottonseed and soybean meal from the United States and fishmeal from Peru, South Africa, and Chile. Fishmeal is now being used more competitively in the Netherlands.

Raising U.S. 44-percent protein soybean meal from a ship's hold by pneumatic suction, Rotterdam. Evident is hard concretion of meal often seen after ocean transportation.

Exports of oilseed cake and meal from the Netherlands average over 200,000 tons each year; 233,000 tons in 1961 and 253,000 tons in 1962. About 40 percent of this is soybean meal. Large quantities of palm kernel cake and meal are produced each year, and only small amounts are utilized by the domestic livestock industry. Also, copra meal follows about this same pattern. Large quantities of linseed meal are also exported each year.

Oilseed meals and cakes are imported into the Netherlands from almost as many countries as oilseeds. Linseed cakes come from France, the United States, Argentina, USSR and Ethiopia. Rapeseed mainly comes from France, West Germany, Algeria, Ethiopia, and Pakistan; peanut cakes from France, Senegal, Brazil and Argentina; cottonseed cakes from the USSR, East Africa, Mexico, Salvador, Peru, Brazil and the Argentine; soybeans from the United States, West Germany and Brazil; sunflowerseed cakes from West Germany, USSR, Uruguay and Argentina; and other oilseed cakes come mainly from the Sudan, Ethiopia, Burma, Indonesia, and the Philippines.

Total supplies of oilseed cake and meal (imports and production) in the Netherlands have totaled over 1,000 and 900 thousand tons in 1962 and 1961 respectively, of which 417,000 and 279,000 tons were soybean cake and meal. These were equal to 40 percent and 32 percent of total supplies in the respective years.

Table 30. — THE NETHERLANDS: Oilseeds, imports and exports, 1950-1962

Year	Soybeans (Total)	Soybeans (from U.S.)	Copra	Peanuts (unshelled)	Peanuts (shelled)	Palm kernels	Flaxseed	Castor beans	Other 1/ oilseeds	Total oilseeds
	Metric tons									
Imports:										
1950.....	79,627	(17,596)	180,807	15,754	---	37,314	66,774	3,137	3,101	386,514
1951.....	81,428	(26,935)	285,895	6,595	---	43,753	33,666	1,588	5,632	458,557
1952.....	53,376	(43,005)	143,941	5,002	---	38,154	17,449	2,490	30,619	291,031
1953.....	103,186	(65,995)	146,283	6,957	5,184	50,137	938	3,301	45,595	361,581
1954.....	102,220	(87,807)	177,819	5,228	11,763	101,424	80,618	3,597	6,598	489,267
1955.....	152,211	(134,675)	101,228	6,318	42,678	108,309	105,376	2,464	11,108	529,692
1956.....	176,373	(139,073)	138,146	6,407	35,043	118,189	124,654	2,322	5,603	606,737
1957.....	188,356	(182,182)	180,049	5,626	35,450	104,218	157,079	2,834	9,279	682,891
1958.....	212,012	(179,477)	96,136	5,932	72,431	133,656	104,801	3,181	30,537	658,686
1959.....	285,599	(241,075)	59,043	6,296	60,638	155,677	107,256	4,182	52,254	730,945
1960.....	338,546	(299,859)	148,663	5,898	27,745	121,895	94,714	3,916	16,493	757,870
1961.....	263,038	(219,769)	159,974	5,263	40,889	142,954	92,712	2,848	13,378	721,056
1962.....	366,450	(341,676)	107,311	6,424	49,803	130,489	67,954	2,833	37,108	768,372
Exports:										
1950.....	---	---	---	---	5	---	7,556	---	11,157	18,718
1951.....	---	---	11,366	---	9	---	6,579	---	11,448	29,402
1952.....	---	---	---	---	44	---	9,022	---	12,067	21,133
1953.....	---	---	---	---	53	---	9,637	---	9,100	18,790
1954.....	5	---	318	---	117	---	9,551	---	13,275	23,266
1955.....	903	---	1,349	---	4,048	---	9,639	---	9,743	25,682
1956.....	1,578	---	1,094	---	162	---	10,856	---	24,002	37,692
1957.....	102	---	19	---	6,391	163	10,123	---	22,514	39,312
1958.....	581	---	40	135	5,711	---	7,662	---	17,460	31,589
1959.....	---	---	---	427	3,780	---	3,790	4	22,336	30,337
1960.....	2,628	---	18	560	4,496	---	4,611	---	22,914	35,227
1961.....	41	---	6,827	712	2,040	---	4,366	---	18,590	32,576
1962.....	1,632	---	605	308	4,651	506	2,435	118	11,222	21,477

1/ Primarily rapeseed, mustard seed, sunflowerseed, poppyseed and hempseed.

Table 31. — THE NETHERLANDS: Oilseed cake and meal, imports and exports average 1950-54, annual 1955-1962

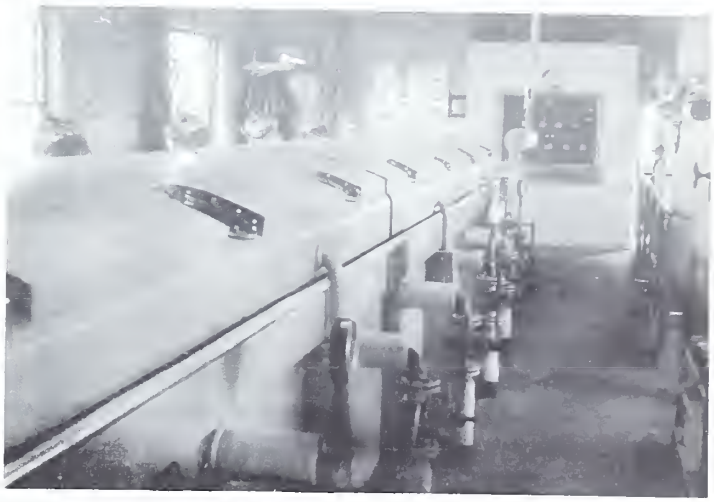
Item	Average 1950-54	1955	1956	1957	1958	1959	1960	1961	1962
	Metric tons								
Imports:									
Soybean (Total)	16,419	46,860	36,128	44,720	29,183	69,042	104,401	70,116	128,458
Soybean (from U.S.)	(3,443)	(19,509)	(7,002)	(2,211)	(5,363)	(30,964)	(60,725)	(36,962)	(109,629)
Linseed	50,118	36,431	59,071	68,948	129,044	129,158	115,887	125,106	162,429
Rapeseed	9,002	19,575	21,100	29,058	20,164	30,158	17,983	25,596	25,272
Peanut	6,316	6,812	9,638	7,083	20,780	23,916	27,870	43,310	34,178
Cottonseed	23,209	50,881	38,559	22,091	37,013	65,649	41,389	53,128	68,190
Sesame	4,125	12,513	16,892	17,142	15,438	13,904	10,890	19,362	18,210
Copra	7,952	25,054	15,478	14,415	16,381	9,251	6,179	19,689	19,066
Palm kernel	3,443	7,400	2,176	4,416	4,229	305	1,284	1,297	25
Sunflower	34,964	14,687	40,203	79,344	94,863	95,729	64,569	107,217	90,110
Other	6,146	14,401	28,597	13,230	10,036	11,707	12,208	16,834	14,206
Total	161,694	234,614	267,842	300,447	377,131	448,819	402,660	481,655	560,144
Exports:									
Soybean	10,640	25,597	28,106	27,861	51,197	75,361	87,266	83,394	103,751
Linseed	3,182	27,955	31,980	25,176	21,232	18,528	18,588	33,155	21,899
Rapeseed	75	1,505	2,074	652	1,296	2,253	1,421	411	2,796
Peanut	117	4,250	12,057	6,493	15,357	18,735	4,482	7,410	11,470
Cottonseed	788	286	873	281	9	113	93	421	158
Sesame	184	14	144	215	87	186	---	193	30
Copra	13,071	13,931	23,846	32,793	27,463	13,504	35,088	38,894	33,332
Palm kernel	13,211	57,787	52,513	52,888	62,094	81,674	59,565	64,395	73,093
Sunflower	1,094	---	245	83	23	66	241	731	206
Other	70	---	---	---	66	210	7,178	3,967	5,923
Total	42,432	131,325	151,838	146,442	178,824	210,630	213,922	232,971	252,658

Table 32.—THE NETHERLANDS: Oilseed cake and meal, imports and exports, and total new supplies, 1960-1962

Kind	1960				1961				1962			
	Imports as oilseeds	Imports	Exports	Total new supplies	Imports as oilseeds 1/	Imports	Exports	Total new supplies	Imports as oilseeds	Imports	Exports	Total new supplies
	metric tons	metric tons	metric tons	metric tons	metric tons	metric tons	metric tons	metric tons	metric tons	metric tons	metric tons	metric tons
Soybean	265.3	103.8	87.2	281.9	208.5	70.1	83.4	195.2	288.2	128.5	103.8	312.9
Peanut	15.1	27.9	4.5	38.5	23.5	43.3	7.4	59.4	27.7	34.2	11.5	50.4
Cottonseed	--	41.3	0.1	41.2	--	53.1	0.4	52.7	--	68.2	0.2	68.0
Rapeseed	--	18.0	1.4	16.6	--	25.6	0.4	25.2	4.8	25.3	2.8	27.3
Sunflowerseed	0.6	64.6	0.2	65.0	1.0	107.2	0.7	107.5	0.3	90.1	0.2	90.2
Copra	52.0	6.2	35.1	23.1	53.6	19.7	38.9	34.4	37.3	19.1	33.3	23.1
Palm kernel	62.0	1.3	59.6	3.7	74.3	1.3	64.4	11.2	67.6	--	73.1	-5.5
Linseed	57.6	115.9	18.6	154.9	56.5	125.1	33.2	148.4	41.9	162.4	21.9	182.4
Other	4.6	23.1	7.2	20.5	3.5	36.2	4.2	35.5	9.9	32.4	6.0	36.3
Total	457.2	402.1	213.9	645.4	420.9	481.6	233.0	669.5	477.7	560.2	252.8	785.1

1/ Oil cake and meal basis.

Compiled from official sources.



Above, windmills, used for power at the earliest crushing mills, the Netherlands, still stand at a few plants. Above right, a small soybean processing plant using the continuous solvent extraction method. Right, a small continuous solvent extractor used only for processing U.S. soybeans.

Soybean Crushing Industry

The Netherlands had 20 mills in operation crushing oilseeds in 1960; in that year 624,000 metric tons were crushed. By 1961 the Netherlands was crushing 686,000 tons, and in 1962 crushings were up more than 60,000 tons again.

THE NETHERLANDS: Soybean crushing mills, capacity solvent extraction, 1962

Name of Mill	Location	24 Hour Cont. Sol. Crushing Capacity	Other Solvent
Unilever N.V.	Zwizndrecht	600	500
Oliefabrieken De Ploeg	Maassluis	250	(batch)
Stichtsche Oliefabrican	Utricht	200	---
Duyvis Oliefabrieken	Koog aan de Zaan	200	---
Speelman's Oliefabreken	Schiebroek	125	---
Total Crushing Capacity for Soybeans		1,400	500

Total Crushing Capacity all Solvent	1,900	M.T.
Yearly Soybean Crushing Capacity Cont. Solvent	400,000	M.T.
Yearly Soybean Crushing Capacity all Solvent	550,000	M.T.
Estimated Crushing Capacity—Other 15 mills	400,000	M.T.
Total Capacity for Crushing Oilseeds (Estimated)	950,000	M.T.

Many of the soybean crushing mills also operate screw-presses. Their estimated capacity is included in the estimate for other 15 crushing mills.

The oilseed crushing margin in the Netherlands is reported to have been narrowing in recent years. Nevertheless, those crushers that have special markets for their oil, such as margarine and salad oil, are operating at full capacity as demand is at peak levels.

Wage levels in the Netherlands average 60 to 70 cents per hour for the average worker or from 100 to 130 guilders for a 42 to 46 hour week. Women workers receive far less than men and on some packing lines are reported to have received about half the wages of the men workers.

Processing costs for crushing soybeans are not available, but it was reported that many operators thought that they were competitive with the U. S. crushers.

The country has many small plants that process fats and oils. Many are small rendering plants for rendering fallen animal fats. More than half are located in the western or port areas and process oilseeds and edible vegetable fats and oils.

Rotterdam is the main crushing center with fats and oils mills located near there. Other crushing centers are Amsterdam, Zeandam, Wormerveer and Maassluis.

There are 22 margarine plants which produce over 225,000 tons of products, most of which is consumed domestically. However, most of the margarine is produced by one large plant in Rotterdam which is outstanding for its complete sanitation.

The import duty structure of the Netherlands tends to protect and develop the domestic crushers and oil refiners by having import duties on vegetable oils, with crude lower than refined oil. Higher duties are leveled on edible oils than on those destined for other purposes.

Soybean Meal in Mixed Feed and Other Uses

The Netherlands is famous for its dairy livestock, but because the country is small the numbers are limited compared with those in other countries in Europe. Total number of cattle found in the Netherlands in 1962 was around 3.8 million head, of which approximately 50 percent were milking dairy cattle, around 1.8 million head in 1962 compared with 1.5 million in the 1951-55 period. Young cattle, mainly dairy breeds, made up about 85 percent of the balance. The balance of cattle herds of the Netherlands are used for beef and dual-purpose. About 75 percent of the cattle are black and white Friesian-Holland cattle. The other two breeds are red and white Meuse-Rhine-Yssel cattle which account for most of the remainder, and black and white faced Groningen cattle, which make up about 2 1/2 percent.

The Dutch hog herds have been expanding rapidly in recent years, beef types are up 45 percent and amounted to 3.2 million head in 1962, one-third (one million) over the 1951-55 average.

Table 33.—THE NETHERLANDS: Livestock, numbers, average 1951-55, annual 1956-1963

Item	Average 1951-55	1956	1957	1958	1959	1960	1961	1962	1963
	Thousands								
Cattle:									
Dairy	1,504	1,457	1,457	1,463	1,499	1,548	1,593	1,652	1,726
Beef and Other	1,229	1,256	1,328	1,410	1,516	1,616	1,635	1,736	1,794
Total	2,733	2,713	2,785	2,873	3,015	3,164	3,228	3,388	3,520
Hogs	2,206	2,448	2,555	2,757	2,554	2,938	2,934	3,187	3,156
Sheep	405	381	433	496	339	294	263	284	267
Poultry	17,436	21,104	24,618	24,862	27,382	30,555	31,787	33,000	---

The mixed feed industry in the Netherlands has expanded rapidly and now produces over 4.6 million metric tons of compound feeds each year. Several new mills are now being built. Only 3 million tons were produced in 1956. In 1959 mixed feed was equal to about 75 percent of the total feed concentrates used on farms; it is now about 85 percent. There are some 2,000 mixed feed plants, but 1,600 are small country mills.

The industry is highly integrated and many mixers also crush oilseeds and mill flour. Some 350 feed mixers are operated by cooperative farmers' organizations. There are about 50 large and medium-sized privately-operated feed mixing plants in the Netherlands. The larger mills, including cooperative mills, have extensive technical equipment and they are carrying on considerable amounts of scientific feeding research in their own laboratories and on experimental farms.

There are 5 large feed mixers in the province of North Holland, 4 in the province of South Holland, 5 in the Southern Province, 10 in the Northern and Eastern Provinces and 3 in the Central Provinces.

The large farmer cooperative feed-mixers in the Netherlands produce nearly 50 percent of the mixed feeds but they do not use a large percentage of soybean meal in their feeds. One large cooperative, the CHV, operates four feed mills at Veghel and one at another location. Executives report that they would use more soybean meal if the prices remained competitive with prices of other oilseed meals available in the Netherlands.

Production of mixed-feeds in the Netherlands—about 30 percent of that in the EEC—in recent years has been expanding at the following levels:

M.T.	M.T.	M.T.
1957—3,125,000	1959—3,750,000	1961—4,605,000
1958—3,300,000	1960—4,300,000	1962—5,000,000 Est.
		1965—6,000,000 Est.

In 1961 and 1960 production by type reported by metric tons was:

Mixed feed	1961	1960
Poultry	1,745,000	1,525,000
Hog	1,755,000	1,700,000
Cattle	1,000,000	975,000
Other	105,000	100,000

Production of mixed poultry feeds has increased rapidly, more than either hog or cattle feed, and in 1961 this increase amounted to nearly 15 percent. However, there was some indication that cattle feeding practices were improving as cooperative mixers produced 26 percent more cattle feed in 1961-62 than in 1960-61. This was an increase from 451,700 tons in 1960-61 to 567,600 tons in 1961-62, or over 115,000 tons. Poultry feed increases by these mixers was only 10 percent, indicating that more poultry feeds were being made by non-cooperatives that used more soybean meal in their feeds.

Broiler feeds produced by commercial mixers in the Netherlands often contain over 20 percent soybean meal, but on an average the level is much lower than this because of the use of fishmeal as a substitute in recent years. The average use of soybean meal in broiler feeds is around 7.5 to 12.5 percent.

The average percent used in laying feeds also runs near these percentages. Chick feeds contain 5 to 7 1/2 percent. Most of the low protein cattle feeds, however, contain only 2.5 to 5 percent soybean meal. Many cattle feeds are pelleted and contain both added fats and molasses. Some high protein cattle feeds (25 to 30 percent protein) contain 10 to 15 percent soybean meal as do the higher percentage concentrates that often contain up to 20 percent soybean meal.

Pig feeds contain 2.5 percent to 5 percent soybean meal.

Soybean crushers in the Netherlands do not produce a 50 percent meal but nearly all the meal produced is toasted. As a result, there is very little—50 percent protein soybean meal used in the country.

Feeding Practices and Use of Soybean Meal.—Roughages are main feedstuffs used for cattle and sheep. The dairy farmers and cattle breeders of Holland aim to maintain high milk yields. On the other hand, beef production is also emphasized. Because of climatical conditions, the cattle are pastured from mid-April to mid-November; the remainder of the year they are kept in barns and are fed more concentrates and silage, hay, fallow crops, beets, and green fodders.

Economic factors have been important in development of the livestock industry, whereby products of high value, produced by intensive labor, could be exported to neighboring countries with high demands for livestock products, bacon, butter, cheese, meat and eggs.

The black and white cattle in Friesland, North Holland, South Holland, Overyssel and Drenthe are fed for milk and fat production (which is over 4.0 percent), while the red and white breed is more of a dual-purpose breed and are not as well fed. The black and white faced breed in Groningen and South Holland was originally a beef type but is now a high milk producer. 1/

Feeding practices for cattle are to feed concentrates during the 6-month housing period and only cakes in the grazing period, because it has been reported that some additional profits are obtained. Seventy percent of the concentrates are mixed fodders.

Pigs are fed large volumes of concentrates (1.8 million tons in 1958) and also seventy percent is mixed fodder. Fattening of pigs now is accomplished mainly by use of mixed fodder rather than skimmed milk and grains. The Product Board is paying premiums for light-weight hogs which is discouraging fattening for fat cuts and lard.

Poultry raising in the Netherlands is a small farm enterprise, and feed is mostly grain with some concentrates.

Potatoes are important feed and over one million tons are used for this purpose. Also, beet tops of sugar beets and other beets are used in all areas for stock feed.

In the Netherlands, the ratio of feed grain to high protein feed is the lowest in Western Europe which means that animal nutrition practices are well advanced. In 1956, 0.101 metric tons of high protein was fed per animal unit (the second highest in Western Europe) and 0.515 tons of feed grains were used to give a ration of feed grain to high protein of 5.1.

Farmers keep excellent records on feeding and production in the Netherlands and all have a cost system that promotes good feeding practices.

1/ Dutch Agriculture, Foreign Agricultural Service, Ministry of Agriculture and Fisheries, Theltague.

Table 34.—THE NETHERLANDS: Fats and oils, per capita consumption, 1955-1961

Item	1955	1956	1957	1958	1959	1960	1961
	Pounds per capita						
Edible:							
Vegetable and other	35.0	36.2	35.1	35.8	36.8	36.2	35.5
Margarine (fat)							
Shortening	4.9	5.4	5.2	5.6	5.5	5.8	6.2
Oils	2.6	3.3	2.8	3.2	3.4	3.9	4.3
Total	42.5	44.9	43.1	44.6	45.7	45.9	46.0
Animal:							
Butter (as fat)	5.6	5.4	7.0	9.4	7.8	8.8	9.3
Slaugher fat	2.1	1.6	1.2	.7	.6	.6	.4
Other	1.7	1.8	1.3	1.2	1.3	1.4	1.4
Total	9.4	8.8	9.5	11.3	9.7	10.8	11.1
Total edible	51.9	53.7	52.6	55.9	55.4	56.7	57.1
Inedible:							
Soap	5.3	6.6	6.2	6.0	5.7	5.9	5.6
Other	9.1	9.2	8.8	9.1	11.3	12.9	13.0
Total Inedible	14.4	15.8	15.0	15.1	17.0	18.8	18.6
Total Consumption	66.3	69.5	67.6	71.0	72.4	75.5	75.7

Compiled from official and other sources.

Soybean Oil Uses and Demand

Soybean oil, as such, is marketed as table oil in the Netherlands. Netherlands however, has a large demand for soybean oil for its margarine industry, but prospects in this market are limited while the market for table oils is expanding. Nevertheless, the major volume of oil is consumed in margarine, and consumer habits have limited the present expansion of this market by demanding margarine with butter-like qualities and shelf storage of the opened margarine.

Margarine processors use around 7 to 18 percent of soybean oil in their margarine, and they say that they cannot use more than 20 percent in their product. For the industry as a whole, during 1961, the total use of soybean oil dropped to 6.8 percent compared with 18.1 percent in 1960, 15 percent in 1959, 9.0 percent in 1958, 7.7 percent in 1957, 8.5 percent in 1956, and a low 5.1 percent in 1955. Average oil content of margarine in the Netherlands for domestic use has been around 82.2 percent and production of domestic-use margarine in 1961 totaled 228,800 metric tons which was only slightly above the 1960 level and around 1,000 tons below the 229,900 tons in 1959, indicating that consumption is leveling off. Shortening production totaled around 39,000 tons in 1961 and contained from 2 to 6 percent soybean oil depending on the type.

Consumer demands for margarine that will melt quickly in the mouth as butter and can be stored on the shelf (both summer and winter) have made it necessary that the processors in the Netherlands use a high percentage of palm oil, coconut oil, and palm kernel oil in their margarine. The total percentage of palm oils, including palm oil the major hard oil used, runs well over 50 percent of total oils included in margarine. Processors say that it is impossible to make this type of oil with a high percentage of soybean oil, hardened or otherwise. Price structures in the main have determined the amount of soybean oil that has been used in from 5 to 20 percent of the total. Palm oil and palm kernel oil obtained from the Congo and other areas of West Africa are highly competitive in the Netherlands. Cottonseed oil from the United States can be used interchangeably with peanut oil in high-priced margarine but not soybean oil, according to most processors.

Some complaints against the use of soybean oil in margarine include the fact that soybean oil is said to contribute a green taste to the margarine when used with a low salt content. Also, flavor reversion has been found to occur after three weeks of open shelf life. Soybean oil is being used at the maximum level at the present time, according to some processors.

Per capita consumption of butter in the Netherlands has increased since 1956 but margarine consumption is down, nearly one pound. This is compared with an increase of 4.7 pounds for butter as shown below:

Butter		Margarine	
Lb.	Lb.	Lb.	Lb.
1956— 6.4	1959— 8.9	1956—43.9	1959—44.8
1957— 9.0	1960—10.7	1957—42.6	1960—43.9
1958—10.9	1961—10.9	1958—43.3	1961—43.1

Consumption levels of those products appear to be leveling off. Total consumption of fats and oils has increased nearly 9 pounds as fat since 1955, and 1961 consumption was 75.7 pounds of which 57.1 pounds were edible fats.

Margarine consumption as fat totaled 35.5 pounds, decreasing below the high level of 1959.

As indicated, the total per capita consumption level of vegetable fats is leveling off, and future disappearance of soybean oil and other edible vegetable oils will possibly increase with population and exports.

Marketing and Government Controls

The cost of moving bulk U. S. soybeans and soybean meal on ocean tramp steamers to the Netherlands, mainly Amsterdam and Rotterdam, has been reduced considerably and should help in expanding our market there for these products if prices remain competitive. In 1962-63 quotations on soybeans were as low as $4.25 per ton and ranged up to $4.75. However, rates to this area have also been quoted at around $5.00-$5.50 per ton. Cost of moving soybeans from Great Lakes' ports to Rotterdam and Amsterdam, the two largest ports, in May have been quoted at $7.50 to $8.75. Ocean freight rates for U. S. bulk meal to Western European ports, including Amsterdam and Rotterdam, have ranged from $8.25 per ton to $8.43 per ton in 1962, but generally cost from 75 cents to $1.00 more per ton than soybeans when shipped in the same cargo.

The Netherlands has developed the trade in oilseeds and oilseed meals on a highly commercial basis and a minimum of formality in the storage and transshipment of these commodities has resulted in a large profitable trade.

Netherlands crushers are aware of the regional differences in U. S. soybeans. Quality-wise, they discount Atlantic coast beans at least $1.00 per ton from bulk Illinois origin beans. Great Lakes' soybeans are discounted around 75 cents a ton because of their low oil content. However, Brazilian beans are reported to be far too costly to process for oil. Argentine soybeans are now coming on the market in the Netherlands and are reported to be selling at $7.00 per ton under U. S.-origin soybeans.

In the Netherlands, marketing aspects have been designated to Commodity Boards representing producers, processing industry, and merchants. They function in the control of the markets and may issue regulations under government supervision that are binding for all aspects of the trade. Commodity Boards have been established for all oilseeds and pulses, margarine, fats and oils, dairy produce, feeding stuffs, livestock and meats and poultry and eggs. Industry deals with economic affairs itself through these Boards. Farmers are highly organized, and 80 percent are in unions and other organizations such as dairy farming. Also, there are 5,000 cooperatives who perform many of the marketing and processing functions for feedstuffs and livestock products produced. About 50 percent of the feedstuffs are marketed through cooperatives. Dairy cooperatives market about three-fourths of the milk, and over 80 percent of the butter is processed by cooperatives.

As in most countries of Western Europe, feed concentrates are often delivered directly to farmers from the mills.

Government Controls.—Most of the import commodities have been liberalized, and for oilseeds and oilseed meals, licenses are not required. When a license is required, it is freely granted and it guarantees the necessary foreign exchange. There are no difficulties with payments for export to the Netherlands.

The Netherlands is greatly dependent upon oilseed and oilseed meal imports. However, a marketing board has power to control oils used in margarine so as not to interfere with their butter production, but this control is not now in effect. The board also subsidizes flaxseed crushing mills by

guaranteeing favorable crushing margins and restricting oil imports. Favored treatment is given to imports from the Belgian Congo. Like other countries, the Netherlands tariff structure favors the importation of the raw material—oilseeds are free, crude oil pays 5 percent and other oils pay 11.5 percent. Meal is free. The U. S. trade data on exports of soybeans, soybean meal and cottonseed and possibly soybean oil are much larger than the Netherlands import data because most of these goods are transshipped to West Germany.

Summary

The soybean crushing mills in the Netherlands are equipped to crush an additional 100,000 tons more soybeans than were crushed at any previous time. Soybean imports into the Netherlands in 1962 increased well above the 1961 level, and reached 366,450 metric tons, as the major crushing mills operated at a much higher percentage of soybean capacity than in 1961 when 263,000 tons were imported.

Imports of soybeans for crushing should reach around 500,000 tons, or near the present crushing capacity level, by 1965 if domestic and foreign markets can be developed for the soybean oil extracted. If not, the level of crushing will be below this figure.

Imports of soybean meal, based on the balance of soybean meal requirement, should climb to over 200,000 tons by 1965 and reached 128,000 tons in 1962. The Netherlands has historically exported about as much soybean meal as has been imported. Many industry people expect to see this market grow because of the location and transportation economies of the Netherlands. However, as domestic demand increases, the export market may not expand significantly.

Soybean meal is recognized as one of the best protein concentrates in the Netherlands, and, as a result, many feed-mixers require it in broiler feeds and other mixes. However, many mixers have based their demand for oilseed meals in other types of mixes on the basis of price. Some meals are actually being purchased as the result of linear programming results.

Most feed-mixers are optimistic about the growth of the feed-mixing industry. However, a few industry and government technicians believe that the industry will not expand much over 5 million tons and may maintain this level in 1965. But, with one new 50-ton-per hour mill now building and others under consideration, and with several completed in 1962, it is expected that mixed-feed production will jump to the level of 6.0 or 6.5 million tons by 1965. This should increase the demand for soybean meal to at least 600,000 tons if the present level of poultry feed expansion is maintained.

Use of U. S. soybeans in mixed-feed without processing has taken place in the Netherlands. When soybeans can be purchased at relatively low prices, soybeans have been used by one large cooperative to increase oil content of the mixed feed by grinding them directly into the mixed-feed ingredients after proper treatment.

Poultry meat production in the Netherlands could double by 1965 and hog production could increase by nearly 25 percent, as it has in the past four years, and cattle numbers by 10 percent. As a result, there will be a demand for an additional 200,000 tons of soybean meal in the Netherlands. This expected demand is based on the continuation of the strongly expanding economy that has been evident in the Netherlands during 1961 and early 1962.

Belgium

Belgium, with a population of around 9.5 million people and a high concentration of livestock, is a growing market for U. S. soybeans and soybean meal. Imports of U. S. soybeans have continued upward, and United States should continue to supply over 90 percent of imports. Imports of U. S. soybean meal have doubled in recent years. As feeding practices continue to improve and the poultry industry expands, the need for high-protein concentrates is expected to increase substantially, and U. S. exports to Belgium can be expected to double by 1965 as colonial-area supplies decline.

Belgium has a small crop of flaxseed which supplies some oilcake and meal and oilseeds for concentrate feeding, but in the main oilseed concentrates are obtained abroad. Total supplies of oilseed cake and meal are over 300,000 tons yearly. Demand for vegetable oils now totals around 150,000 tons, or 34 pounds per capita.

Belgium is one of the most highly industrialized nations of the world and imports one-third of its food, and feedstuffs are heavy, as only ten percent of the people are engaged in agriculture. But most of the farms are small, and milk, meat and eggs account for around three-fourths of agricultural output. Wheat, oats, rye, barley, sugar beets, and fruits and vegetables are the important crops.

Food consumption, at around 2,900 calories, is low for Western Europe but demand is rising slowly. Consumption of vegetable fats and oils is increasing steadily.

Belgium is about the size of Maryland, and like the latter has many family-type farms that make feed distribution complicated. Grain and grassland supply a large part of the feed for livestock but little of the needed high-protein concentrates.

Under the EEC, agriculture may be subject to more government control, and price supports will be maintained on some grains. However, economic activity is expected to remain high, and increased disposable income and industrial expansion will maintain Belgium as a growing market for U. S. soybeans and soybean meal.

The population of Belgium is not increasing significantly, with a rate of growth around one-half percent per year. This rate will not significantly affect increase in demand for soybean products.

Belgium's food consumption levels are now only slightly above prewar; however, the consumption level has been marked by a higher intake of fruits, vegetables, meat, and other livestock and poultry products, and less grains and potatoes.

Milk consumption is increasing, and present high production is aided by exports of dairy products. Milk production in Belgium has been increasing, with 1960 output 10 percent over the 1951-55 average level. Improved feeding practices, including larger quantities of protein concentrates fed per cow, as well as the slight gain in numbers of dairy cattle, probably accounted for the increase.

Milk production for the 1951-55 period, and annually from 1957-1962, was:

	Mil. lb.		Mil. lb.		Mil. lb.
Average 1951-55	7,771	1958	8,363	1960	8,579
1957	8,201	1959	8,278	1961	8,702
				1962	8,825

In Belgium, production per cow is new well above 1951-55, and in Europe this level is surpassed only by the Netherlands. Belgium production per cow has been as follows:

		Lb.		Lb.
Average 1951-55	8,128	1957	8,403	1959	8,172
		1958	8,309	1960	8,399

In 1960, per capita production of milk in Belgium ranked second in the world.

Production of eggs in Belgium is also increasing rapidly, and in 1960 output was nearly one-third greater than in 1951 to 55. Improved feeding practices and commercialization of Belgium's small flock have accounted for the rise in egg production in past years, as follows:

	Mil.		Mil.		Mil.
Average 1951-55	2,175	1958	2,800	1960	2,867
1957	2,720	1959	2,960	1961	2,975

Poultry meat consumption is increasing significantly. Average per capita consumption of poultry meat in Belgium has increased about 83 percent in the last 6 years. While the rate of increase in this country has not been as great as that in some Western European countries, it has been marked by a significant change in technology of poultry raising. Increase in use of soybean protein has been taking place. Per capita consumption of poultry is the second highest of any country in Western Europe; however, most production is carried on in small family units. Increases in poultry production in Belgium have not been as large in numbers as those in other Western European countries, but potential production is great. At the present rate of consumption, of 18 pounds per capita, production could increase two-fold, if consumption is to equal that of the United States (around 35 to 36 pounds per capita). Production of poultry meat may further increase if large markets should be developed in Western Germany and United Kingdom or other areas. Present per capita consumption of poultry meat is, as follows:

	Lb.		Lb.		Lb.
1955	8.6	1958	10.8	1960	14.3
1956	9.2	1959	11.7	1961	16.5
1957	10.3			1962	18.8

The expanding broiler industry offers the greatest potential market for soybean meal in Belgium. This country became a net exporter of poultry meat in 1957, and Belgium-Luxembourg net exports since that time have been:

Thous. lb.	Thous. lb.	Thous. lb.
1957 - 331	1958 - 1,543	1959 - 2,424
		1960 - 4,947

Belgium-Luxembourg production of poultry meat, the important factor in creating demand for oilseed meals, has been at the following levels:

	Mil. lb.	Mil. lb.	Mil. lb.
Average 1951-55	- 73.1	1957 - 96.2	1960 - 140.0
1956	- 85.0	1958 - 103.0	1961 - 164.5
		1959 - 113.3	1962 - 189.6

Over the years, the number of birds1/ has been:

	Mil.	Mil.	Mil.
Average 1951-55	- 24.4	1957 - 32.1	1960 - 39.8
1956	- 28.3	1958 - 34.3	1961 - 51.4
		1959 - 37.8	1962 - 65.0

1/ Based on 3 pounds per broiler-13 to 14 average kilos.

Meat production is another factor creating a large demand for oilseed meals in Belgium-Luxembourg, and has increased 15 percent as follows:

Average 1951-55 - 890	1958 - 987	1960 - 1,012
	1959 - 991	1961 - 990

Per capita consumption of meat has increased around 10 percent over the 1951-55 level as shown:

Average 1951-55 - 100	1957 - 106	1960 - 109
1956 - 106	1958 - 108	1961 - 110
	1959 - 106	1962 - 113

Demand for Soybeans and Soybean Cake and Meal

Oilseeds.--Belgium produces only a small quantity of flaxseed, and that production is declining. Belgium imports around 200,000 to 300,000 tons of oilseeds each year. In 1960, soybeans, mainly from the United States, made up approximately 50 percent of the total. Imports of soybeans are approximately 3 to 4 times the level of the 1950-54 average. Other oilseeds imported and crushed in large quantities are peanuts, copra, palm kernels, and flaxseed. However, minor quantities of castor beans, grapeseeds, sunflowerseed, mustardseed and poppyseed are imported and crushed in this country. Exports of oilseeds are nominal and are made up mainly of domestic flaxseed. (In very few years have exports of oilseeds from Belgium exceeded 10,000 tons.)

Oilseed Cake and Meals.--In addition to the large quantities of oilseed cake and meal supplied by the oilseed crushing industry, Belgium imports

Table 35.—BELGIUM: Oilseeds, imports and exports, average 1950-54, annual 1950-1962

Year	Oilseeds												
	Soybeans (total)	Soybeans (from U.S.)	Peanuts (SH)	Copra	Palm kernels	Flaxseed 1/	Castor beans	Rape Seed	Sun-flower seed	Mustard seed	Poppy seed	Other oilseeds, grains & fruits	Total imports
	M.T.	M.T.	M.T.	M.T.	M.T.	M.T.	M.T.	M.T.	M.T.	M.T.	M.T.	M.T.	M.T.
Imports:													
Average:													
1950-54	29,932	(20,314)	15,563	49,756	12,619	78,595	14,035	489	869	2,016	119	9,220	213,213
Annual:													
1950	33,452	(28,030)	18,109	23,626	17,635	83,834	2,363	342	808	814	110	10,702	191,795
1951	63,066	(33,059)	15,864	77,579	6,052	112,771	6,656	537	803	638	184	6,239	290,389
1952	21,485	(17,220)	1,395	86,746	1,093	111,270	15,343	240	690	623	112	5,799	244,796
1953	23,412	(15,024)	7,652	26,714	11,523	38,217	15,236	162	739	773	41	12,569	137,038
1954	8,245	(8,239)	34,800	34,118	26,795	46,881	30,576	1,164	1,305	7,234	150	10,791	202,059
1955	30,756	(27,320)	7,475	21,779	26,095	1,899	3,540	1,249	1,281	955	178	8,178	103,385
1956	40,226	(39,202)	36,500	32,926	21,719	2,757	3,611	3,362	7,213	762	40	10,730	159,846
1957	34,496	(33,372)	38,369	44,546	13,256	3,093	4,409	2,053	1,047	1,098	77	8,457	150,901
1958	38,154	(33,472)	57,649	18,900	29,860	1,111	4,561	1,606	1,500	936	77	12,738	167,092
1959	76,859	(75,740)	62,287	10,688	30,449	35,473	2,909	3,179	1,194	1,033	73	8,540	232,684
1960	135,156	(133,557)	26,009	29,129	23,137	29,958	6,166	2,299	1,590	1,460	194	10,066	265,164
1961	90,263	(80,694)	64,466	36,793	23,262	28,046	3,009	1,962	1,754	1,643	147	7,181	258,526
1962	119,668	(119,302)	76,196	24,538	32,040	32,475	6,876	3,597	1,486	1,106	126	8,132	306,240
Exports:													
Average:													
1950-54	--	--	12	--	68	4,864	22	410	--	14	--	138	5,528
Annual:													
1950	--	--	24	--	192	1,003	109	606	--	34	--	--	1,968
1951	--	--	9	--	69	5,678	--	181	--	3	--	254	6,194
1952	--	--	7	--	55	4,730	--	480	--	14	--	162	5,448
1953	--	--	--	--	25	6,477	--	506	--	2	--	55	7,065
1954	--	--	19	--	--	6,431	--	280	--	15	--	221	6,966
1955	--	--	27	--	--	4,514	--	590	--	11	--	272	5,414
1956	--	--	390	--	--	31,919	--	506	--	76	--	109	33,000
1957	--	--	18	--	--	3,004	--	376	126	74	9	52	3,659
1958	--	--	--	--	--	1,459	5	159	84	84	11	39	1,841
1959	--	--	8	--	--	2,287	--	171	83	106	10	505	3,170
1960	--	--	2	12	--	9,717	--	42	83	492	9	331	10,688
1961	101	--	23	--	--	20,250	--	117	76	686	--	131	21,384
1962	243	--	28	41	--	18,512	--	51	131	177	32	337	19,552

1/ Includes seed for planting.

Table 36.—BELGIUM: Oilseed cake and meal, imports and exports, average 1950-1954, annual 1950-1962

Item	Average 1950-54	1955	1956	1957	1958	1959	1960	1961	1962
	Metric tons								
Imports:									
Peanut	153,240	16,515	160,822	128,660	108,324	12,988	21,993	37,045	42,528
Copra	6,785	20,973	15,857	13,786	13,619	92,025	8,552	8,772	9,615
Palm kernel	3,082	3,461	1,879	1,366	605	374	943	200	41
Soybean (total)	4,256	55,628	42,412	43,013	41,546	76,034	76,837	51,956	92,767
Soybean (from U.S.)	(1,594)	(20,495)	(12,272)	(14,876)	(14,468)	(41,721)	(53,430)	(38,114)	(71,353)
Linseed	7,461	16,265	8,113	21,972	85,753	27,271	28,032	26,719	27,278
Rapeseed	2,006	12,615	8,405	16,548	17,356	12,380	6,874	16,633	18,655
Sunflower	71	1,186	10,137	17,693	18,227	29,433	14,223	18,272	20,970
Cottonseed	7,511	52,017	42,176	18,400	35,295	38,872	28,715	27,013	34,046
Other	14,924	4,935	5,662	4,525	6,471	12,658	16,558	38,629	49,702
Total	199,336	183,595	295,463	265,963	327,196	302,035	202,727	225,239	295,602
Exports: 1/									
Peanut	28,751	1,027	4,046	2,240	6,839	12,752	3,052	6,639	12,070
Copra	16,471	2,171	1,665	3,425	1,049	178	1,061	3,165	2,055
Palm kernel	220	6,337	3,291	2,978	7,773	9,669	6,853	4,482	12,747
Soybean	---	n.a.	n.a.	n.a.	n.a.	n.a.	8,539	12,153	14,130
Linseed	2,784	20,586	25,683	15,885	10,802	17,100	8,872	10,980	12,837
Rapeseed and colza	124	122	52	166	400	30	20	122	94
Sunflowerseed	59	---	247	838	308	152	243	128	1,712
Cottonseed	253	571	856	321	628	264	461	75	420
Other	639	1,950	2,993	2,843	3,408	4,475	8,162	39,351	38,571
Total	49,301	32,764	38,833	28,696	31,207	44,620	37,263	77,095	94,636

1/ Including reexports.

Table 37.—BELGIUM: Oilseeds, supply and distribution, annual 1957-1962 1/

Item	1957	1958	1959	1960	1961	1962
	Metric tons					
Supply:						
Opening Stocks, January 1	20,141	28,193	24,535	20,640	33,515	32,448
Production 2/. . . .	17,930	15,600	13,738	20,293	17,470	32,855
Imports.	203,779	182,257	239,854	265,763	259,627	305,212
Total	241,850	226,050	278,127	306,696	310,612	370,515
Distribution:						
Exports 2/.	6,858	9,972	10,482	10,613	17,533	18,798
Crushing 3/	202,807	188,046	243,910	260,490	257,546	304,707
Seed and Other . . .	3,992	3,497	3,095	2,078	3,085	3,095
Ending stocks, December 31 . . .	28,193	24,535	20,640	33,515	32,448	43,915
Total	241,850	226,050	278,127	306,696	310,612	370,515

1/ Adjusted for seed used for planting.
2/ Mainly flaxseed and rapeseed.
3/ Availabilities.

Compiled from official and other sources.

Table 38.—BELGIUM: Supply and distribution of oilseed cake and meal, annual 1957-62

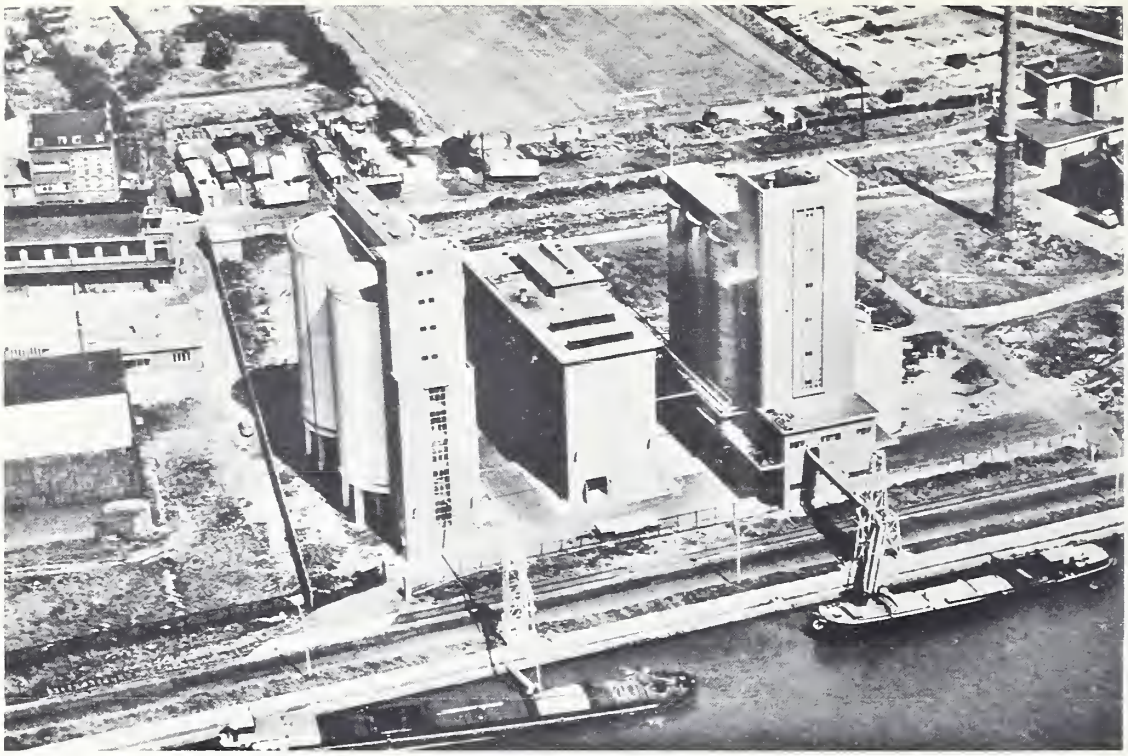
Item	1957	1958	1959	1960	1961	1962
	1,000 metric tons					
Supply:						
Opening stocks, Jan. 1	16.8	23.1	9.5	7.9	15.8	9.4
Production	104.2	107.8	118.6	148.2	161.7	178.6
Imports	150.2	229.7	219.2	202.7	225.3	295.6
Total	271.2	360.6	347.3	358.8	402.8	483.6
Distribution:						
Exports	39.1	44.7	46.0	37.2	77.1	94.6
Consumption	209.0	306.4	293.4	305.8	316.3	379.8
Ending stocks, Dec. 31	23.1	9.5	7.9	15.8	9.4	9.2
Total	271.2	360.6	347.3	358.8	402.8	483.6

Table 39.—BELGIUM: Vegetable Oils 1/, Supply and Distribution, 1955-1961

Supply	1955	1956	1957	1958	1959	1960	1961	1962
	1,000 metric tons							
Supply:								
Opening Stocks, Jan. 1	23.7	16.1	10.4	13.7	11.6	15.4	17.3	16.0
Production	62.0	88.5	82.1	81.6	85.0	79.2	103.6	101.6
Imports (crude) . . .	112.0	79.0	73.3	67.1	68.7	83.7	57.1	62.5
(refined) . .	--	--	(6.3)	(7.7)	(6.8)	(8.6)	(7.4)	--
Total	197.9	183.6	165.8	162.4	165.3	178.3	178.0	180.1
Distribution:								
Exports (crude).. . .	47.7	25.3	21.7	10.3	7.0	6.9	8.0	7.3
(refined) . .	--	--	(20.8)	(16.0)	(14.4)	(20.4)	(17.4)	--
Consumption	134.1	147.9	130.4	140.5	142.9	154.1	153.0	156.8
(refined adj.). . . .	--	--	(-14.5)	(-8.3)	(-7.6)	(-11.8)	(-10.0)	--
Ending stocks	16.1	10.4	13.7	11.6	15.4	17.3	17.0	16.0
Total	197.9	183.6	165.8	162.4	165.3	178.3	178.0	180.1

1/ Includes peanut oil, soybean oil, coconut oil, palm oil, palm kernel oil, linseed oil, castor oil, and other minor oils including cottonseed, rapeseed, sunflower, olive, and tung oil.

Estimated per capita total consumption of vegetable oil (pounds) (edible, including use in margarine, and inedible)	28.3	32.1	32.7	34.2	34.1	37.3



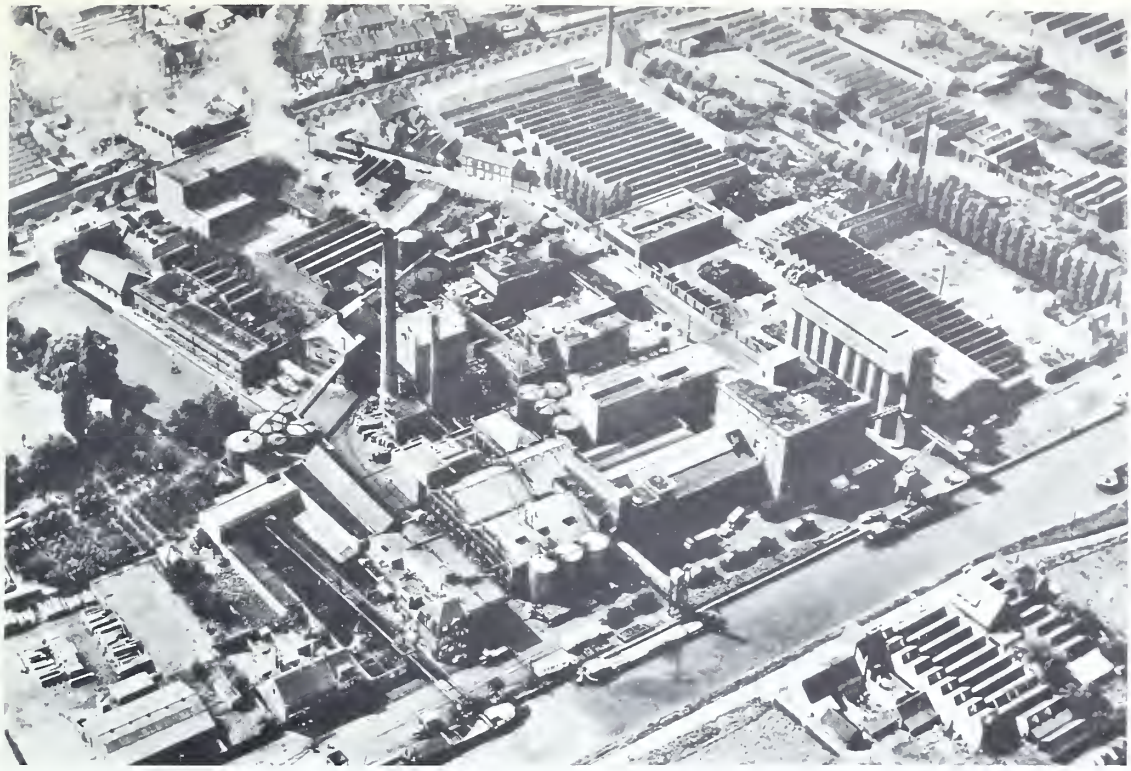
Large solvent extraction soybean mill, recently erected in Antwerp, Belgium, for the sole purpose of processing U.S. beans. Located on a canal for inland water transportation, the plant can handle large quantities of both incoming soybeans and outgoing soybean flakes.

200,000 to 295,000 metric tons of these high-protein products. However, in recent years, composition of these imports has changed substantially. Soybean cake and meal imports in 1960-61 were about 3 1/2 and 2 1/2 times respectively, those of 1954. However, imports from the United States are five to eight-fold 1954 imports. Peanut cake and meal in the past have been the bulk of imports, but in recent years imports have declined substantially. Imports of linseed meal have continued at a high level but substantially below those in 1958. Other large imports of oilseed cakes and meal are made up mainly of cottonseed, sunflower and rapeseed, with some palm kernel, peanut, and other oilseed cakes and meal.

Soybean Crushing Industry

The Belgian crushing industry crushed over 300,000 tons in 1962, compared with 260,000 and 257,000 metric tons during 1960 and 1961, respectively. Only 244,000 tons were crushed in 1959 and 203,000 tons in 1957. Soybean crushings in 1961 were 94,500 compared with only 36,000 tons in 1957. Record crushings of 124,000 were recorded in 1960. Expansion in the crushing industry has taken place since 1955, when only 154,000 tons of oilseeds were crushed.

Belgium soybean crushing capacity, by major firms, and total daily capacity, for 1962, was as follows:



Large combined plant for crushing vegetable oilseeds and soybeans, and for refining fats and oils, located on Belgian canal to provide for volume transportation of bulk materials to and from the factory.

Major Companies	Plant Location	Soybean Capacity (24 hours) M.T.	Other M.T.
N. V. Vandenmoortele	Merksem - Izegem	300 SE1/	150 SE1/
Nouvelles Huileries Anversoises S.A.	Merksem	250 SE1/	250 SE1/
Union S. A.	Baasrode	150 SE1/	200 SE1/
Huilerie De Rynck et Raes	Roulers	50 SE1/	--
Huilerie Joseph Vanhoutte	Courtrai	50	--
Other (25 small mills)		50	500

1/ S.E. solvent extraction.

There are in Belgium 30 mills that crush oilseeds, with by far the larger number located in the large port areas of Brussels and Antwerp. However, five of these mills specialize in corn germ and in flaxseed crushing.

Crushing of soybeans varies considerably from year to year as prices and availabilities change. When peanut crushings have fallen, soybean crushings have increased. In 1961, peanut and copra crushings increased as soybean crushings fell one-third.

Solvent crushing capacity for soybeans in Belgium at 250,000 tons includes two very modern extraction plants that were designed and built for

processing soybeans. Capacity of these mills is over 150,000 tons each year. In 1960, around 135,000 tons were crushed, but in future years, with these two new mills in complete operation, it is expected that crushing will continue upward toward the soybean operational capacity of 250,000 tons. At present rate of utilization, the industry is operating at a level of 60 to 70 percent of capacity.

Total oilseed operations have been at the rate of around 40 percent of capacity.

Wage rates in the industry for unskilled workers average around 60¢ (30 francs) per hour.

Belgian oil crushers have large interests in plantations in Africa, where they produce palm kernels, copra, palm oil, and peanuts and other oilseeds. These oilseeds and oil-bearing materials from their own plantations are crushed first; after that, Belgium buys on the international market.

Soybean Meal in Mixed Feed and Other Uses

Belgium produces only a limited number of cattle and hogs. The cattle herds are made up mainly of beef and dual-purpose cattle totaling around 2,700,000 in 1963. Dairy cattle totaled only 1 million head this year. At present, the poultry industry in Belgium is just starting to expand, and in early 1962 the number of birds totaled around 18 million compared with 15.1 million in the 1951-55 period.

The expansion of the Belgium mixed feed industry has led to a large increase in production capacity. Plant extensions and modernizations have been made in recent years, and new plants have been built there. The batch and line methods of production are used. Fats are used by many manufacturers in mixing.

Automation is now being applied to feed manufacturing and its use is expected to increase in the future.

There are 700 producers of mixed feedstuffs in Belgium, and the industry is dominated by 15 large concerns. Approximately 1.2 million tons of mixed feeds were produced in 1958 and this jumped to 1.24 million metric tons in 1959[1/]. Mixed feed production, broken down by type, in 1958 was 35 percent cattle feed, 35 percent poultry, and 30 percent hog feed, with around 1 percent other types. In 1959, cattle feed production totaled 421,000 tons or 34 percent, hog feed totaled 400,000 or 32 percent, mixed poultry feed was 399,000 or 32 percent and other was 21,000 tons or 2 percent.

Production of mixed feeds in Belgium has now risen considerably from these levels and production in 1961 and 1962 was 1.8 million and 2.2 million tons, respectively. The mixed feed industry is expected to continue to increase production of mixed feeds, and some industry men expect production to increase at the rate of 20 percent each year. They predict that the industry will reach 2.5 million tons by 1965. Others in the industry are less optimistic and feel that the industry has expanded to meet the present demand and that future expansion will be mainly in the poultry and hog industries. Production of hog feed jumped to around 721,000 tons, and poultry feed to around 559,000 tons in 1961. Increased use of soybean oil meal will bring total demand to around 250,000 tons by 1965.

1/ Soybean Council of America, Inc. Soybean Meal Utilization by the Mixed Feed Industry. Common Market Countries, Rome, 1961.

Table 40.—BELGIUM: Livestock; numbers by country, by type, average 1951-55, annual 1956-63

Item	Average 1951-55	1956	1957	1958	1959	1960	1961	1962	1963
	Thousands								
Cattle									
Dairy	957	974	976	996	1,013	1,078	1,080	1,070	1,120
Beef & Other	1,327	1,268	1,509	1,547	1,617	1,612	1,604	1,570	1,580
Total	2,284	2,242	2,485	2,543	2,630	2,690	2,684	2,640	2,700
Hogs	1,427	1,452	1,482	1,431	1,447	1,726	1,679	1,882	1,816
Sheep	114	103	104	108	108	110	83	83	83
Poultry	15,160	16,000	17,000	16,000	16,000	15,550	17,382	18,000	---

Production of compound animal feeding stuffs for several past years was as follows:

	1960 1/ Metric tons	1961 Metric tons	1962 Metric tons
Poultry feed	549,960	558,536	620,000
Hog feed	563,145	720,920	892,000
Cattle feed	426,325	449,458	635,000
Calf feed		65,510	
Horse feed		14,443	
Other	10,570	26,335	50,000
Total	1,550,000	1,835,000	2,197,000

Exports of mixed feeds from Belgium are negligible, and nearly all are consumed by the domestic livestock industry.

One large cooperative, Le Comptoir d'Achat et de Vente du Boerenbon Belge, has a feed mill at Antwerp with a mixing capacity of over 5,000 bags of feed per day. It is an extensive buyer of oilseeds as well as feed concentrates.

Feeding Practices.--In Belgium, beef and dairy cattle raising are for the most part family operations and are not as large-scale or mechanized as are hog and poultry raising. But production and consumption of mixed feeds has about doubled since 1953, and are increasing rapidly as livestock production is intensified. Around 1953 production was roughly one-third for cattle, one-third for poultry, and one-third for hogs, but the proportion is now greater for poultry and hogs than for cattle.

Production of mixed feeds for hogs and poultry has increased rapidly because of the greater efficiency of mixed feeds in commercial practices. A feeding efficiency of 3 to 3.5 pounds of feed producing one pound of weight increase is common in commercial hog raising. Poultry feeding has advanced technically. The number of eggs per laying hen has increased to 190 to 210 eggs in larger units.

Soybean Oil Uses and Demand

The market for soybean oil has a definite possibility of expanding in Belgium. This is shown by the increase in per capita consumption of vegetable oils and margarine in recent years. Butter per capita consumption has declined slightly in contrast to increases in many other Western European countries.

The market for soybean oil at present is limited by two factors: (1) soybean oil is not a preferred oil for use as a salad or cooking oil as is peanut oil; and (2) margarine processors use only limited amounts of soybean oil because they prefer palm oil and whale and fish oil.

Soybean oil is marketed as such in Belgium without mixing with other oils. However, as in France, much of the oil is marketed in clear bottles, and as such it is in competition with peanut oil which Belgium consumers

1/ Soybean Council of America, Inc. Soybean Meal Utilization by the Mixed Feed Industry. Common Market Countries, Rome, 1961.

Table 41.—BELGIUM: Margarine, supply and distribution, annual 1956-1961

Item	1956	1957	1958	1959	1960	1961
	Metric tons					
Supply:						
Beginning Stocks, Jan. 1	1,586	1,834	1,612	1,660	2,055	2,267
Production	91,932	95,244	101,197	106,956	114,576	115,669
Imports	31	111	339	265	370	489
Total	93,549	97,189	103,148	108,881	117,001	118,425
Distribution:						
Exports	235	446	474	889	3,633	2,699
Consumption 1/	91,480	95,131	101,014	105,937	111,101	113,449
Ending Stocks, Dec. 31	1,834	1,612	1,660	2.055	2,267	2,277
Total	93,549	97,189	103,148	108,881	117,001	118,425

Source: National Statistical Institute

1/ Est. per capita consumption of butter and margarine (pounds) product:

Margarine	22.5	23.2	24.5	25.5	26.7	27.1
Butter	23.8	22.1	22.0	21.2	19.8	17.7
Total	46.3	45.3	46.5	46.7	46.5	44.8

have used for many years and definitely prefer. The problem of marketing soybean oil in Belgium is a difficult one, and price factors are not always important. This situation will continue to decrease or limit the expansion of soybean crushing, as demand for soybean meal continues to expand.

Margarine producers use soybean oil in very limited amounts, and this market is not very promising. However, about half of the soybean oil produced in Belgium is used in this way. The industry's consumption is increasing and it used around 90,000 tons of vegetable oil in 1961, which was about 46 percent of total fats and oils consumed, and 80 percent of the total vegetable oils. However, use of soybean oil in salad and cooking oil is increasing and promises to become a good market. Only around 5 to 10 percent of vegetable oils used in margarine is soybean oil, and there is little indication that this percentage will be increased as long as the Belgian housewives continue to demand a margarine that has all the characteristics of butter.

Marketing, Government Controls, and the EEC

Marketing.--Cooperative marketing of feedstuffs is an important aspect of the Belgium trade. Delivery of feed in bulk is still not used extensively in Belgium, and most oilseed meals and feeds are marketed in bags of approximately 110 pounds. Marketing of cubed and pelleted feeds and meals is increasing. This type of feed is used mainly for cattle, but is also being used for poultry and swine.

Ocean freight rates to Belgium for bulk soybeans and soybean meal for cargo shipments and partial cargo shipments have been reduced somewhat during the early part of 1962. Bulk shipments for May and June, 1962, from U. S. gulf ports to Antwerp have ranged for the most part from $4.75 - $5.50 long ton. Some rates, however, have been quoted at $4.00 - $4.25 and $4.50 in 1963. Shipment for bulk soybeans from U. S. Great Lakes' ports ranged from $8.25 - $8.75 and Duluth to $9.90 and from Chicago $8.90. Rates from East Coast were $4.25 - $4.50. Meal rates from U. S. gulf ports for soybean meal to European ports ranged from $5.75 and $8.25 to $8.43 in 1962 and 1963.

Government Controls and the EEC.—Belgium-Luxembourg relies heavily on imports of oilseeds and oilcake and meals. Imports were formerly controlled through a licensing system and preference is given to the Belgian Congo and territories of the Netherlands. The tariff structure and the licensing system favor the importation of oilseeds and oilbearing materials, rather than semi- or fully-processed vegetable oils. For example, there are no duties on soybeans and flaxseed and soybean meal, but crude oil has a 10.0 (revised) percent duty and the duty on refined oil is 15.0 percent. Imports are mainly oilseeds and oilseed cake and meal. The United States is first supplier of good mixed quantities of soybeans and flaxseed. Imports of soybean, cottonseed and linseed oil from any source are relatively small.

A complementary or compensation tax of 2 percent on imports of vegetable oil is now now being leveled making total taxes on vegetable oil still highest at 12 percent. There is little evidence that the trend toward increased trading with the Common Market will reduce U. S. exports of soybeans and soybean meal to Belgium. The livestock picture summarized previously indicates that opportunities exist for considerable expansion in this market. The high level of U. S. soybean and soybean meal trade with Belgium in past years is expected to continue in 1963 and following years as economic activity is expected to remain high, and government fiscal and monetary policy, as well as

development planning, is designed to promote further growth of the economy by increasing rate of investment, foreign trade, and employment of risk capital. Price levels are steady, and increased consumer income and industrial expansion and modernization will keep the Gross National Product expanding at around 4 percent annually.

Summary

Belgian soybean crushers could crush an additional 100,000 metric tons if they could find a market for the soybean oil. Present indications are that the future marketing of oil will determine the market for soybeans. Soybean crushings in 1962 reached around 112,000 tons and could expand to around 200,000 tons by 1965.

Imported soybean meal reached 93,000 tons in 1962 and may jump to over 150,000 tons by 1965. Belgian feed mixers use from 5 to 10 percent soybean meal in mixed feeds, depending upon type of feed and availability of meal. For cattle and hogs, about 5 percent is used in the mixed feed, but for poultry around 10 percent soybean meal is used. Broiler feeds are often increased to over 20 percent soybean meal. The percentage of soybean meal sold for direct feeding and for mixing by farmers was estimated at about 33 percent. Production of poultry feeds is increasing, and the percentage use of soybean meal in these feeds is expected to increase, as well. However, the wide range of oilseed meals available to the Belgium feed mixers has diversified the use of these protein supplements. When prices are competitive, additional soybean meal is imported, as in 1960 and 1962. However, several times during 1962, U. S. soybean meal prices in Belgium have been higher than local flake prices and other competitive oilseed meals.

Belgian farmers can increase their incomes by becoming specialized producers of animal products. If this development continues, the market for soybeans and soybean meal will expand in Belgium. Since small family farms constitute the majority here, this development appears possible for pork, poultry and eggs, and beef cattle. The feasibility and profitability of such adjustment to the farmer is being demonstrated under auspices of the program planned by the Agricultural Attache, from the United States.

Expanding consumption and export markets in Belgium of animal products (including butter will result in larger markets for U. S. soybeans and soybean meal.

The EEC offers to provide a large market of 170 million consumers for Belgium's livestock products. Furthermore, expansion of consumer income is expected to step up demand considerably. Consumption and exports of animal products, including dressed poultry and meat, can be expected to increase substantially in Belgium where living standards are relatively high. If production costs can be lowered sufficiently, farmers can maintain profits. Soybeans and soybean meal offer the solution to this problem.

Increase in the consumption of animal fats and in use of vegetable oils favor the crushing of soybeans over other oilseeds. Margarine production and consumption is increasing, a situation that is somewhat different than in West Germany.

Imports of soybeans and soybean meal can double the 1961 level by 1965 if the 5-year trend continues. This would be equivalent to total imports of nearly 150,000 to 200,000 tons of U. S. soybeans and 150,000 tons of U. S. soybean cake and meal.

Spain

Spain has been a large taker of U. S. soyoil in the past 8 years and today is the largest dollar importer for the U. S. product, while promising to become a much larger dollar market for the oil and soybean meal. Soyoil from the United States is expected to continue to supply increasing demand from rising population and higher per capita income, increased investments from abroad, and gains in economic activity. Liberalization of foreign investment has encouraged U. S. investors in Spain. Investment of capital in the crushing industry indicates Spain will become a significant importer of U. S. soybeans in future years.

The agriculture of Spain, for the most part, is concerned with cultivation of grapes and olives. Olive oil is the country's most important agricultural product, and Spain the world's largest producer.

Food consumption levels are increasing, but they are still very low compared with those of other Europeans countries, and average around 2,600 calories per person per day. The diet is particularly poor in meat proteins and high in carbohydrates. The country is now consuming less milk, eggs, and meat than it did in the pre-Civil-War era. Small rises in output of these products have been insufficient to take care of population increases.

Spain now has embarked on a program for development of its poultry industry, and production in 1962 has made significant gains over previous years. State trading has held back the development of free marketing. Until the last few years, most trade has been conducted through bilateral agreements, and private trade has been at a severe disadvantage. With freeing and development of the economy, a development of large commercial imports of soybean products has resulted.

Average per capita consumption of poultry meat in Spain is estimated at about 8 pounds. The future development of the poultry industry has almost unlimited opportunities. The present trend to larger use of soybean meal can be expected to follow the upward trend of the poultry industry. If this industry were to expand to provide equal consumption to that now found in France, a two-fold increase in poultry meat production would be necessary. With continued development of present feeding technology, demand for soybean meal will increase several times within the next few years.

Poultry meat production in 1961 was over 135 million pounds, but in 1962 it was estimated at 241 million pounds. Most of this meat was consumed within the country. Consumption will double from this figure in a few years.

Other meat consumption in Spain is not significantly higher on a per capita basis than in the prewar period. Nevertheless, since 1951-55, production has increased nearly 50 percent. Production increases are shown in the following data:

	Mil. lb.	Mil. lb.	Mil. lb.
Average 1951-55	872	1958 — 1,032	1960 — 1,221
		1959 — 1,101	1961 — 1,241

Supply and Demand for Soybeans and Soybean Meal

In the past, Spain has not imported large quantities of oilseeds. Linseed, copra and castor beans, are the major oilseeds imported. In recent years, some soybeans and palm kernels have been imported and crushed, while imports of copra have been reduced.

Spain has historically imported small quantities of oilcakes and meal. Imports of soybean meal have increased rapidly since 1956. Imports of U. S. soybean meal totaled around 40,000 metric tons in the 1962 and 1961 marketing years, but imports are expected to increase rapidly in the future.

Small and decreasing amounts of cottonseed and flaxseed have been exported. Only small quantities of oilcake and meal are exported from Spain. The country does, however, produce large quantities of olive oilcake that are used domestically for the livestock and poultry industries, but the quality is low and the feeding value limited. A considerable amount is used for fertilizer.

Fishmeal is now being imported in larger quantities for the poultry industry, where it competes directly with soybean meal in poultry feed formulas. Prices to feed mixers for fishmeal are $5 per ton over soybean meal ($140 vs $145 c.i.f., Spain).

Soybean Crushing Industry

The oilseed crushing and processing industry in Spain includes around 150 firms which crush most of the olives and produce and refine most of the olive oil. Thirty of these firms have crushing mills for vegetable oilseeds. There are 85 companies that produce only olive oil. Several of the mills crushing vegetable oilseeds also process olives. There are also over 24 plants that process fishoil and several that process animal fats. The annual capacity of the mills equipped to process oilseeds is estimated at around 200,000 metric tons. This is far in excess of the amount of oilseeds processed.

The most important oilseed crushing mills are located around the following cities: Seville, Malaga, Astorga, Cartagena, Barcelona, Badalona, Bilbao, Cordoba, Villena, Nonovar, Santander, Utrera and Valencia.

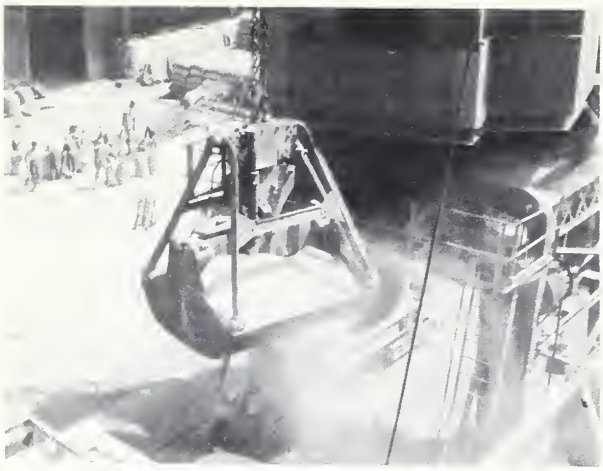
Spain also has five margarine factories that produce margarine from vegetable and marine oils.

Three new oilseed crushing mills are now being built that will be able to handle soybeans by solvent extraction. These mills will also be equipped for processing other oilseeds, as well as olive oil pomace. Completion of one continuous solvent extraction plant of 120 M.T. per day capacity at Seville will provide the industry with a capacity of around 75,000 to 100,000 M.T. a year for solvent processing of soybeans.

Soybean Meal in Mixed Feed and Other Uses

The livestock herds of Spain are dominated by the vast number of sheep found in the country. Sheep production is fairly well stabilized at about 22 million head. Livestock numbers, nevertheless, are somewhat below the number of the pre-Civil-War period.

The poultry industry promises to be an expanding market for soybean meal. The country now has over 34 million chickens, nearly 70 percent over the number in 1951-55. Hog numbers are now 23 percent over the 1951-55 average. A large percentage of the cattle in Spain are of the dual-purpose type. Many oxen are found in the country, and with horses they are the main source of farm power.



Soybean meal operations at port of Tarragona, Spain. Left, meal being lifted from an oceangoing ship. Right, bagging of meal.

Developments of recent years are indicated by the following comparisons:

	Average 1951-55	1956	1957	1958	1959	1960	1961	1962	1963
Cattle	Thous.	Thous.	Thous.	Thous.	Thous.	Thous.	Thous.	Thous.	Thous.
Dairy	1,112	684	714	744	750	790	790	800 1/	800
Beef, Other	1,776	2,053	2,022	1,990	1,940	2,850	2,978	3,090	3,080
Total	2,888	2,737	2,736	2,734	2,690	3,640	3,768	3,890	3,880
Hogs	4,974	5,104	5,150	5,200	5,400	6,032	6,135	6,135	6,100
Sheep	24,115	21,152	20,643	20,746	20,736	22,622	22,665	22,665	22,690
Poultry	20,675	24,300	25,000	26,000	28,000	29,000	---	34,900	---

1/ Estimated.

Continuation, and even an expected step-up in the expansion of mixed feed production, can be expected with certainty to take place in Spain particularly in mixed feeds for the poultry industry. Many businessmen expect production to increase from the reported 700,000 metric tons of mixed feed in 1961 to around 1 million tons in 1962, and to reach around 2 to 3 million metric tons in 1965. This rapid increase in production, while directly related to expansion of both broiler and layer industries in Spain, may be the result solely of increased broiler production in the future. Broiler meat production is expected in these industries to double in a short time, and they are planning to increase production significantly. New mills are being built, or have just been completed, for doubling production of mixed feeds by many concerns.

New mixed-feed mills are now under construction in all of the main poultry production areas, as Vallodolid in North Central Spain, where the broiler and layer industry is located; around Seville, where expansion in the production of broilers has been large, and around Barcelona and Tarragona, where the same industry is expanding.

Poultry feeds are the most important product at most of the mixed feed mills. This type ranges from 60 percent to over 90 percent of mixed feed production in areas of concentrated poultry production. Output of mixed feeds for poultry in Spain probably is about 80 percent of the total at present. Hog feed is the most important feed mixed, next to poultry feed. It accounts for 10 to 15 percent of feed production. In some areas, cattle feed comprises as much as 20 percent of production, but there are only a few mills producing this feed.

Bagged fishmeal is unloaded, Tarragona.

At present, use of soybean meal in mixed feeds is limited by availability. Many mills use from 5 to 8 percent in their formulas. The general percent is 5 for broiler feeds and 8 percent for layer feeds. Most mixed feed mills will double the percentage used at present, when the soybean meal becomes available. However, this mixed-feed industry has not used as large a percentage of soybean meal as it would like, mainly because of trade restriction and domestic prices. The demand for this meal in 1960 was estimated at around 80,000 metric tons, double the amount imported from the United States.

Under the present controlled marketing system, price is the chief barrier to increased use. Soybean meal which now costs the mills the equivalent of around $140 per metric tons at the mills, compared to around $145-$150 for fishmeal is the preferred meal. These two meals compete directly in the mixed feed formulas, but a lower soybean meal price under free imports would naturally bring a much greater use of soybean meal in the present formulas.

Expansion of the mixed feed capacity in Spain is increasing rapidly as shown by the new mills being put into production in 1962:

SENA at Vallodolid	New mill—capacity	60,000— 70,000 M.T. yearly
PACSA at Seville	New mill—capacity	110,000—150,000 M.T. yearly
CATYD at Seville	New mill—capacity	50,000— 75,000 M.T. yearly
CASI at Barcelona	New capacity only	10,000— 20,000 M.T. yearly
Coop Avicola de Reus	New mill—capacity	70,000—M.T. yearly
Total new capacity 1962		300,000—385,000 M.T. yearly

The Mixed Feed Industry.—The production of mixed feed in Spain in 1961 totaled around 700,000 metric tons, compared with around 400,000 metric tons produced in 1960. However, production in 1955 was only 100,000 metric

tons, which indicates that the industry has expanded about six-fold in a short period of six years.

Production of balanced feeds and other protein concentrates, such as fishmeal, meat meal, and oilseed meals, are well below the national requirements in Spain. On the other hand, the production of fodders such as alfalfa, hay, turnips, dried beet pulp, carob beans, horse beans, vetches, acorns and bone meals, are about equal to domestic requirements. Production of feed grains in Spain is low, and the country is not self-sufficient in corn and barley, which must be imported.

There are an estimated 356 mixed-feed manufacturers in Spain. The industry has not used modern methods of production in the past, but some modern mills are now being installed.

The feed mixing firms have their offices in the large cities of Spain. Madrid has 11 firm offices located there, Barcelona 3, Bilbao 3, Seville 5, and Valencia 3. The Province of Barcelona has 17 firms, the Province of Madrid 12; the Province of Tarragona 11, the Province of Valencia 16, the Province of Biscay 9, and the Province of Zaragoza 10 firms.

Feeding Practices.—Feeding livestock in Spain has not had the scientific background that is found in most of the other countries of Western Europe. As a result, feeds are often nutritionally deficient. Livestock on the farm is fed with very small amounts of protein concentrates or mixed feed. An increasingly larger amount of mixed feed is being used on large estates where blooded stock is being raised. The principal farm source of feedstuffs is in the form of fodder, grain straw, root crops, and other local produce, including olive cake. Various other byproducts, such as dried beet pulp, are often fed. Olive oil cake is low in protein compared with soybean oilmeal. In general, more oilcake concentrate is needed in Spain, along with feedgrains and fodder supplies, if expansion of the livestock industry is to take place.

The poultry industry is generally on a commercial feeding basis. This industry dominates the demand for protein concentrate for feeds. Demand for soybean meal has increased as a result of feeding trials carried out through cooperation with the Soybean Council of America. Future developments in this field should result in still greater demands for soybean meal.

High prices have been reported as a limiting factor on soybean meal imports. The expected increase in the demand for soybean meal will induce larger shipments, thus reducing landed prices.

Soybean Oil Uses and Demand

The edible and inedible fats and oils situation in Spain is dominated by olive oil production. Spain produces around half of the world's olive oil. Unlike those of most other Western European countries, animal fats in Spain are mainly fishoils, and a small amount of tallow and grease of little importance. Per capita consumption of vegetable oils for edible use has been around 36 pounds with total fat-and-oil consumption around 38 pounds.

Additional edible oil is needed, and U. S. soybean oil can fill it. Spain has a large deficit in fats and oils. The olive oil crop does not fill total consumption and export demand. In 1960-61, 149,000 metric tons of olive oil was exported. The large olive oil exports made are of great importance to stabilization of the economy. This trade is expected to grow in the future rather than decline. This may open up a still wider market here for U. S. soybean oil. The deficit has been filled in recent years with large shipments of lower-priced soybean oil, previously under Public Law 480, and recently for dollars

Loading tank trucks with refined soybean oil to distribute to dealers and distributors. Plant is the large Exisa Refinery and tank storage receiving station, Sevilla, Spain.

from the United States. This year Spain bought about 200,000 metric tons of soybean oil. Soybean oil's low price fits in well with limited domestic purchasing power.

Spain has an annual deficit of vegetable oil around 150,000 to 300,000 metric tons, depending upon the size of the olive crop. Annual production of olive oil averages from 350,000 to 500,000 metric tons or more. In 1960-61, production was 500,000 metric tons of olive oil plus 22,000 metric tons of sulphur oil used for edible purposes. In the off-year 1961-62, olive oil production was around 365,000 metric tons plus 18,000 metric tons of sulphur oil. But in 1962-63, production has fallen to around 327,000 tons indicating that imports will necessarily be larger in 1963. Imports are expected to reach around 500 million pounds.

Spain has around 5.7 million acres of olive trees, of which 375,000 acres are still unproductive. No significant expansion in the olive crop is expected in the near future. Spain also produces a small amount of cottonseed oil and linseed oil from domestic production which totaled 12,000 metric tons in 1960-61, and 16,000 in 1961-62. Spain has a small margarine industry that is expanding. Production of margarine reached 12,000 metric tons in 1962, climbing from 3,854 tons in 1959, 10,990 tons in 1960 and 11,105 tons in 1961.

Marketing

Some of the soybean meal is still being imported in bags and must bear both the higher freight cost and heavy handling charges. On the other hand, soybean oil moving to Spain is now being handled in bulk, and savings have been large. Bulk handling facilities are available at the Port of Vigo; with tank capacity of 6,000 metric tons; San Sebastian 8,000 metric tons; Demagrisa has an unloading station in Barcelona of 7,500 metric tons; Tarragona 6,000 metric tons; Malaga unloading 6,000 metric tons; CADIS' storage 6,000 metric tons; and Seville storage 11,500 metric tons; with a total of 47,000 metric tons. When expansion of facilities at Vigo to 40,000 metric tons are

Table 42.—SPAIN: Edible oils, supply and distribution, 1960-61 to 1962-63

Item		1960-61		1961-62		1962-63
		Edible	Inedible	Edible	Inedible	Edible 2/
		1,000 metric tons				
Supply:						
Stocks (Nov. 1):	Olive oil	37	---	62	---	42
	Sulfa oil	3	---	3	---	---
	Seed oil	33	---	49	---	83
Total		73	---	114	---	125
Production	Olive oil	500	---	340	---	327
	Sulfa oil	22	40	17	30	20
	Seed oil	12	---	22	---	25
Total		534	40	379	30	372
Imports	Soybean oil	140	---	177	---	105
	Peanut oil	---	---	28	---	73
	Sunflowerseed oil	---	---	---	---	44
Total		747	40	698	30	719
Distribution:						
Exports	Olive oil	149	---	84	---	80
	Sulfa oil	---	15	---	---	---
Total		149	15	84	---	80
Consumption 1/	Olive oil	326	---	276	---	210
	Sulfa oil	22	25	17	32	20
	Seed oil	134	---	193	---	270
Total		482	25	486	32	500
Stocks (Oct. 31):	Olive oil	62	---	42	---	80
	Sulfa oil	3	---	1	---	---
	Soybean oil	49	---	83	---	60
	Sesame oil	2	---	---	---	---
Total		747	40	696	32	719

1/ Per capita consumption: edible 36.1 pounds, 1961-62; 36.8 pounds, 1962-63.
2/ Second estimate:
Source: Compiled from official reports.

completed, total capacity for unloading vegetable oil will be around 87,000 metric tons.

Ocean transportation rates for small cargo movements of U. S. soybeans to Spain and Portugal have been quoted at a much higher rate than to other European ports that take full cargoes.

The names of two of the major importers of soybean meal for Spain are:

(1.) The Cooperative Nacional de Suministros y Distribucion de Productos Agricolas (C.O.E.S.), Madrid, and

(2.) Servicio Commercial de Piensos Compuestos, Madrid.

Soybean meal rates are usually agreed upon rates, and recent charges between the Comisaria and the shipping companies for freight and loading have been $20.50 per metric ton. This cost could be reduced by more than 50 percent by making bulk cargo shipments. Now bulk rates are quoted at $6.60 per ton to Tarragona from U. S. gulf. Seville rates are about the same; $5.75 has been quoted from U. S. East Coast.

Government Controls

Oilseeds and fats and oils for industrial use have been liberalized in Spain. Approximately 70 percent of the goods imported into Spain were liberalized in recent years. Imports of fats and oils and of oilseeds, including soybeans and soybean oil for edible use, require an import license. Foreign exchange for these commodities is readily available after the import license has been obtained. There are no difficulties with payments for exports to Spain.

As of September 17, 1962, peanuts, crude peanut oil and refined peanut oil were liberalized. Soybean meal was liberalized January 1, 1963.

Soybean and other vegetable oils imported into Spain bear a heavy custom duty and fiscal charge when they are to be used for edible purposes. For crude, purified, or refined soybean oil, the custom duty is 30 percent, while for most other edible oils the rate is 10 percent; the fiscal charges are 5 percent for all types. However, when the oil is purchased by the government, these are omitted. The results of these high charges are that state trading has been strong and private enterprise entirely excluded as far as importation of the oil is concerned. There is a sanitary inspection tax on edible oils of 8 ptas, per metric ton.

The custom duty of 5 percent applies to all oilseed meals, cakes and residues. There is a fiscal charge for full-fat oilseed meals, or 5 percent as compared with 2 percent on low-fat soybean meal. Oilcakes and meal are classified in the government trading group. Mixed feeds bear a custom duty of 25 percent, and a fiscal charge of 3 percent.

Soybeans must pay a custom duty of 5 percent, and they bear no fiscal charge. Soybeans imported by the National Supply Board to obtain soybean oil and meal are temporarily free of custom duties. Industrial oilseeds have been liberalized. Soybeans are still under license.

Crushers of soybeans must pay 30 percent tariff plus 5 percent fiscal tax on actual oil obtained from imported soybeans.

Vegetable oils for industrial, consistent, drying and technical uses have been liberalized.

Summary

There is a great need in Spain to expand its livestock industry. To do this, imports of feed grains and high protein oilseed cake and meal will be needed. Adoption of more efficient feeding methods and practices will require expansion of present forage production in many areas (although the country is now self-sufficient in these feeds), and a large volume of imports of concentrates.

Spain will need to increase vegetable oil imports to maintain its upward consumption trend in fats and oils. The present consumption trend is expected to continue at 10-percent increase per year; consumption around 40 pounds per capita may result by 1965.

The present deficiency of the Spanish economy in oilseeds and oilseed products has been estimated at around 300 to 400 million pounds of vegetable oil and around 100,000 metric tons of high protein meal each year. Present imports of soybean meal are running around 40,000 metric tons each year, and soybean oil imports are around 250,000 metric tons or 400 million pounds, equivalent to 13 pounds per capita.

These present deficiencies will probably increase in the next few years. It is estimated that with continued expanded consumption of poultry meat, the demand for soybean meal will more than double the present deficiency of 100,000 metric tons, and the demand for soybean meal will be in the neighborhood of 200,000 metric tons by 1965. At present, Spain is producing around 80 million broilers per year, and by 1965 the country should be producing around 100 to 150 million broilers each year. At this expected rate of production, consumption of poultry will be about equal to that in France at present. At this rate of production in the broiler industry, coupled with increases in the hog industry and with improved feeding practices, the country should take 200,000 metric tons of soybean meal to meet its expanded demands. Part of this demand will be met by meal as soybeans.

Population rises will account for an increased demand for vegetable oil of nearly 50 million pounds by 1965. Gains in olive oil production will not be large enough to take care of this need, and the demand for vegetable oils will remain slightly in excess of 350 to 450 million pounds each year, depending upon the 'on-or-off' year of olive oil production. The increase in demand will come mainly from per capita increase in consumption. Per capita consumption of edible fats and oils in the 1960-61 crop year was 50 percent larger than in the pre-Civil-War period, and 20 percent above the average of 1951-55. A 10-percent increase by 1965 is based upon the upward trend in the economy now taking effect on consumer demand. Margarine consumption is only 3/4 pound and butter 6/10 pound per capita—almost negligible compared with the United Kingdom.

The per capita consumption of edible oils, including olive oil, in Spain has been as follows:

	Lb.		Lb.		Lb.
Pre-Civil-War	—24.3	1955-56	—34.2	1958-59	—37.0
Average 1951-55	—30.9	1956-57	—36.5	1959-60	—36.2
		1957-58	—37.1	1960-61	—36.2

Per capita consumption for 1961-62 has been estimated at 36.5 pounds and for 1962-63 at 36.8 pounds.

The liberalization of soybean meal from government controls in January 1, 1963, should bring a rapid increase in use of U. S. soybean meal in Spain. High cost of meal under government importing agencies has held down imports, and many companies say that if expected price reduction results from liberalization they will immediately double their use of U. S. soybean meal.

Meat production is based on carcass and includes beef, veal, pork, mutton, lamb, goat and horsemeat, but excludes variety meats-rabbit and poultry meats. Per capita consumption of meat in 1961 was 30 percent over the average for 1951-55:

	Lb.		Lb.		Lb.
Average 1951-52	-31	1956	-37	1959	-38
1955	-37	1957	-37	1960	-40
		1958	-37	1961	-40
				1962	-42

Protein consumption in Spain, mainly from grain protein, is estimated at approximately 72 grams per person per day, and fat consumption around 70 to 80 grams per person per day.

The market for U. S. soybean oil, soybeans, and soybean meal in Spain is in a state of constant change. Recent months have seen a large purchase of soybean oil and, in addition, purchases of sunflowerseed oil and peanut oil. Peanut and sunflower oil were first purchased during 1962 and 1963.

Recent revisions in the Spanish law have made it mandatory for vegetable oils to be marketed in identifiable forms in bottles. Blends of vegetable oils and olive oil have been outlawed. This situation should provide an opportunity to market U. S. soybean oil on the basis of improved quality, to meet an increased demand.

The trend to crushing soybeans has been stepped up during 1963. The EXISA Solvent Extraction Plant at Seville was completed in April, 1963. In addition, several other soybean solvent extraction crushing plants are being built. At Valencia, ARLESA is building a plant utilizing 400 metric tons per day; also MOLLINEDO is constructing 2 plants, one at Tarragona (600 tons per day) and another one at Valladolid (200 tons per day). Other plants are projected by SOJA-REUS, at Reus, (250 tons per day—to start at 150 tons), and 3 plants are planned by another group at Malaga, Alicante and Almendralejo-Badajos, (150 tons per day each). A solvent plant is also being built at Santurce (200 tons per day) and an existing Cartagena plant is also installing new machinery for crushing soybeans. By 1970, it is possible that Spain will be crushing 250,000 to 300,000 tons of U. S. soybeans annually.